# Applying Basic Anatomy For Yoga Instructors and Everyone In Between

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# *Introduction*

In my previous book titled Basic Anatomy For Yoga Instructors and Everyone In Between we discuss the basics of the human body. We covered things like bony landmarks, basic muscle actions, the effect of aging on bones and more. If you need to start at the very beginning, I hope you will start with the first book then move onto this one. We will dive into some more specific aspects of the human body.

We will learn how muscles are structured and how they contract, how bones remodel and how reflexes work. We cover the origins, insertions, and actions of many muscles. The nervous system and stress response are covered more in depth in this book than in the previous one. We also cover planes of motion and I share some of my common findings for muscle imbalances.

Either book can stand alone, however, some information is built upon the knowledge gained in the first one.

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## *The whole System*

Before we begin our journey and dive deeper into some structures of the body, I want to acknowledge a few ways that everything is connected.

How we live our lives plays a role in how we feel, how we appear and usually our overall happiness in general. Genetics, posture, eating, hydration, and our habits are just some of the components that play a role in who we are as individuals.

This also applies on a more intricate level, how much water we intake in a day impacts the hydration level of our body and its tissues.

Whether we realize it or not, what we are nourishing our bodies with affects our energy level and more. When we make these types of decisions, we are impacting our entire body.

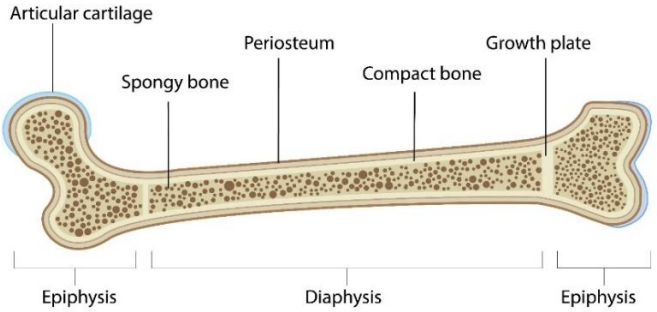
Genetics also impact us, more than I think most of us realize. Look at how your parent's walk. Now, look in the mirror or at your children. It is amazing.

Notice how you move throughout the day, see if you can relate how your tissues are impacted by this.

## *Bones*

Our bones have different layers. We utilize these layers and different shapes and sizes of bones to our advantage as human beings.

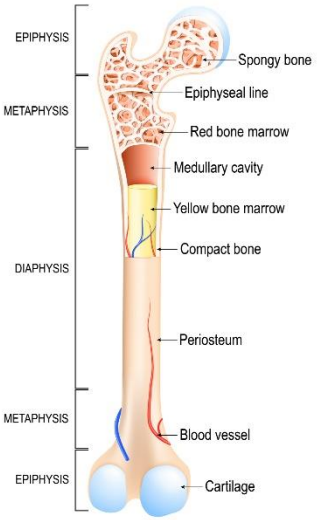
We are going to discuss the different layers of long bones here as they are a good example for bone structure.




The **diaphysis** is the long portion, which is composed mainly of compact bone which surrounds a hollow center known as the medullary cavity. Some spongy bone lines the medullary cavity.

The **epiphysis** is found on the ends of the bone and consist of spongy bone primarily which are coated externally in compact bone.

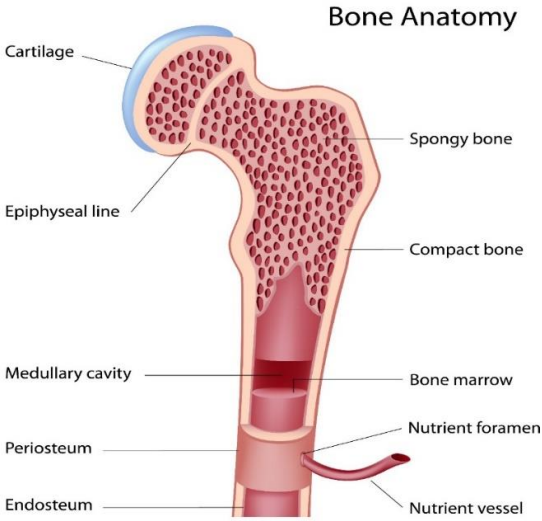
Bone anatomy




The growth plates, also known as the **epiphyseal plates,** are located on each end between the diaphysis and epiphysis. Once a bone is full grown in length these plates become ossified and then are referred to as epiphyseal lines.

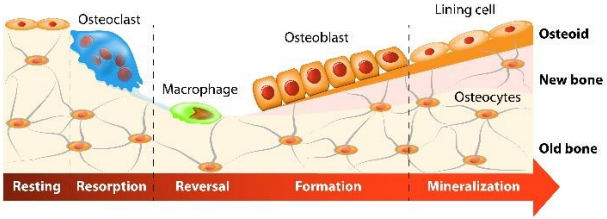
The **medullary cavity** is filled with marrow. Marrow can also be found in the cavities of spongy bones. Red bone marrow produces blood cells. Yellow marrow primarily stores fat cells. Bones are formed completely of red bone marrow before birth and start to change to a combination of yellow and red marrow just before birth. Eventually in the limbs all the red marrow in long bones is replaced by yellow marrow. Other areas contain both red and yellow marrow.

The inner surface of the bone cavities are lined with vascular connective tissue called **endosteum**. The **periosteum** covers the outer layer of the bone and is comprised of a connective tissue membrane. Tendons and ligaments connect to the periosteum.



Bone remodeling happens when new bone replaces old bone. The old bone is removed, and new bone is formed in its place. Over a length of ten years, in a full gown person, the entire skeleton is replaced through a specific process called a basic multi-cellular unit or BCU. Osteoclasts and osteoblasts that are assembled into BCU last about six months as they travel across or though the bones surface.

## The bone remodelling process



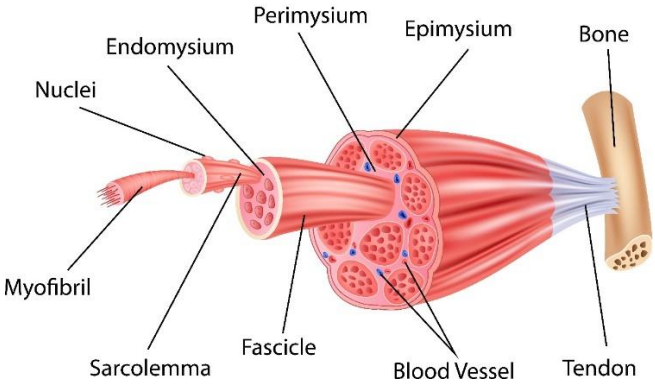

When bone remodeling occurs, old bone is removed by **osteoclasts** then new bone is formed in its place by **osteoblasts**. During this process woven bone is converted into lamellar bone.

Depending on the type of bone tissue and shape of the bone the specific sites will vary with regard to where the osteoclasts remove bone and osteoblasts form bone.

## *Muscles*

There are different layers of a muscle, just as there are different layers of bones. Each muscle cell is known as a muscle fiber. There are many layers that work together which help the muscle fibers function properly.

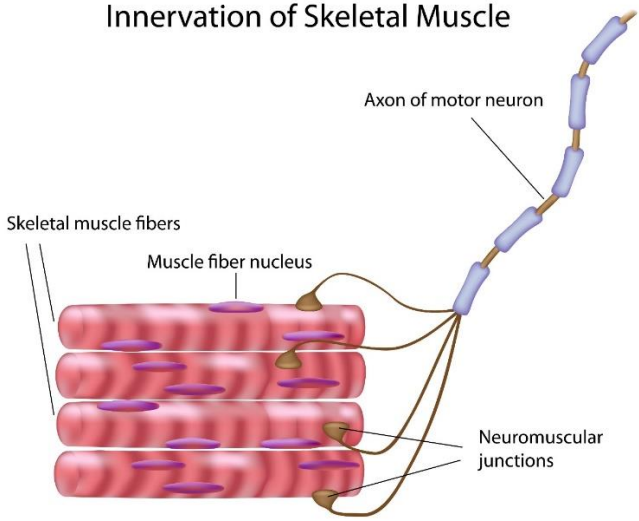
**Structure of Skeletal Muscle**




There are several layers of **epimysium**, which is an intricate layer of connective tissue. Deeper in the muscle it works to help nerves and blood flow to each muscle fiber while separating the individual muscle fibers that lie inside the fascicle. Epimysium eventually combines with muscular fascia, the outer

layers help to keep organs, tissues and muscles separated from each other.

Each muscle is subdivided into numerous bundles of muscle fibers by the **perimysium.** These visible bundles are known as **fascicles.** Each fascicle is supplied with nerves and blood vessels which passthrough the lose connective tissues of the perimysium.




**Motor neurons** are responsible for making skeletal muscles contract. Beginning in the central nervous system motor neurons continue through nerves into skeletal muscles. Each muscle is typically supplied by several motor neurons, which control multiple muscle fibers. Each branch of the motor neuron is responsible for a different muscle fiber.
**Neuromuscular junctions,** or **synapses,** are where the axon and the muscle fibers meet.

Muscle contractions contain an electrical component and a mechanical component.

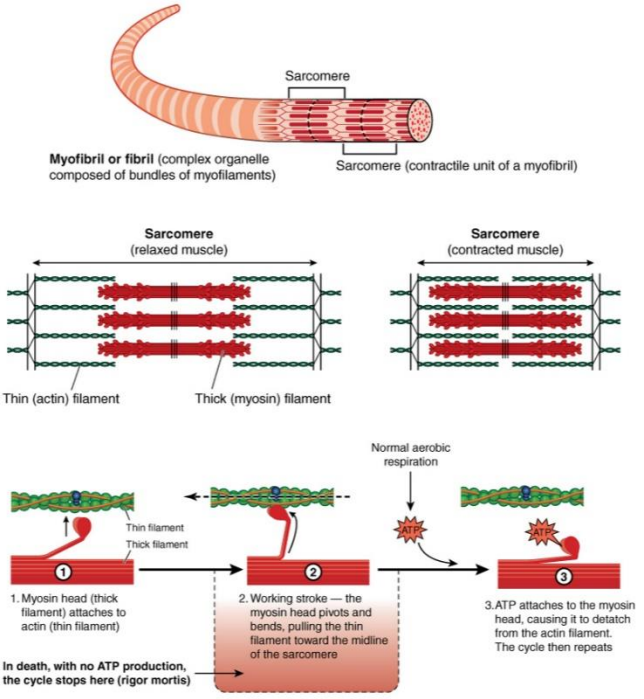
The electrical components consist of **sarcolemma**, the membrane of the muscle, composed of plasma. The sarcolemma have inward tube-like folds called **Transverse tubules** or **T tubules** that help each muscle fiber contract in unity. The “switch” for muscle contraction lies in the **sarcoplasmic reticulum** which in skeletal muscle is composed of smooth endoplasmic reticulum that is highly specialized.

The mechanical components consist of bundles of muscle cells known as **myofibrils.** These long fibers resemble thread and run the length of the muscle fiber. The myofibrils contain protein filaments, which interact during the muscle contraction to shorten the muscle fibers.

**Actin** and **myosin** are different types of **myofilaments**. Actin is a thin myofilament, while myosin is a thick myofilament. Combined into orderly units they are called **sarcomeres,** which is the structural and functional unit of skeletal muscles.

Muscle contraction is the primary function of skeletal muscles. The parallel alignment of myofilaments in a sarcomere are what allow muscle contractions to be possible.

When a muscle contraction occurs the actin and myosin myofilaments inside the sarcomere slide past each other. This shortens the sarcomere and is known as the **sliding filament theory**.



## *Communication System*

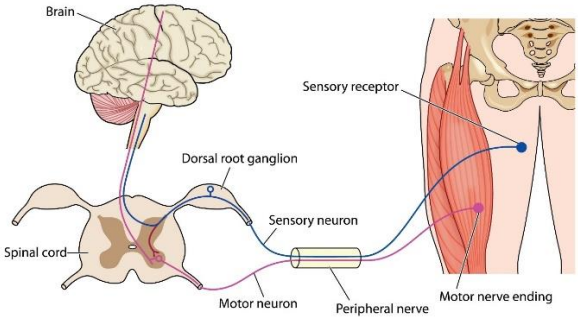
The nervous system is the communication system of the body, it is composed of neurons which are specialized cells. Neurons function to transmit and coordinate signals though the body.

There are three primary functions of the nervous system:

The **sensory function** senses internal or external changes in the environment.

The **integrative function** of the nervous system allows appropriate responses to occur and decisions to be made by analyzing the sensory information.

The neuromuscular responses of course involves muscle contractions, like the stimulation of muscle spindles or adjusting to walk on unstable ground. The **motor function** is the neuromuscular response to sensory input.

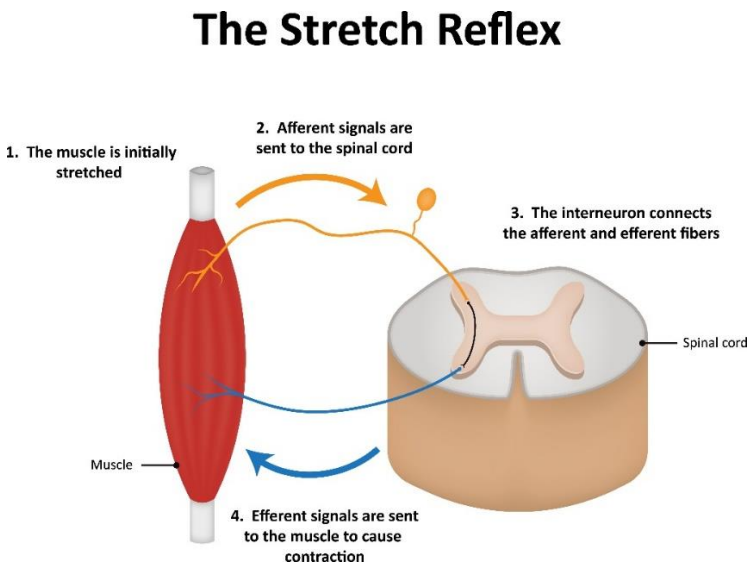


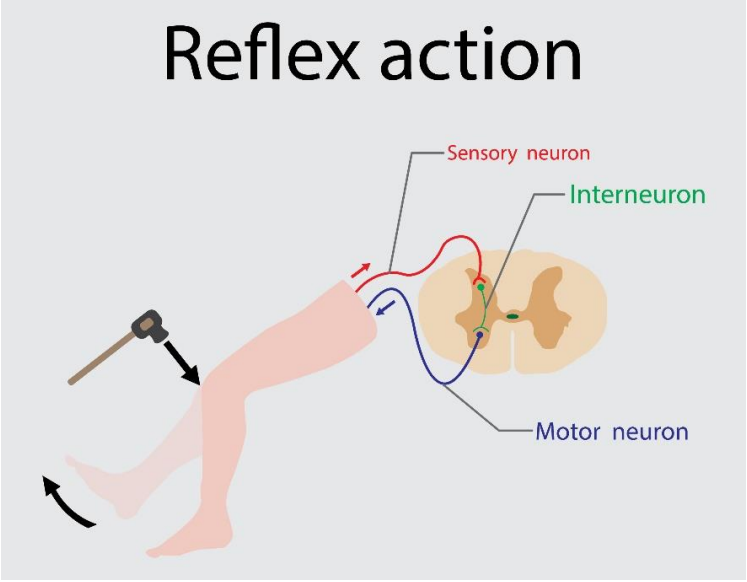

Both the integrative and the motor functions rely on information from the sensory function, which they analyze and then respond to appropriately. When we have a learned muscle movement like writing or eating with a fork, that is happening because of the central nervous system. It gives us the ability to analyze the ground as we walk and run, to write without having to think much about it and to engage our muscles for movement.

**Proprioception** is a function of the nervous system. It helps us determine where our body is positioned and determine accurate movements. Proprioception works by compiling sensory information it receives about the position of the body and movement of the limbs from mechanoreceptors (such as muscle spindles, Golgi tendon organs and joint receptors) and sends the majority of these stimulations to be processed automatically by the cerebellum. Other regulatory functions like homeostasis (the body maintaining stability, physically, chemically, etc.) are processed by the medulla oblongata.

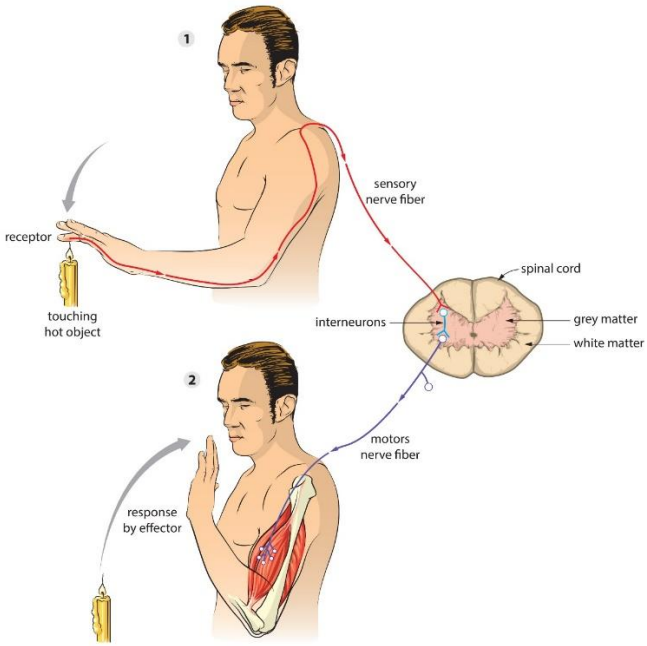
## *Reflexes*

Muscle spindles are the sensory receptor for the simplest reflex in the human body, the **stretch reflex**. Muscle spindles work by causing a muscle contraction in the same muscle that is being stretched. An example of this is the knee-jerk reflex test you might receive at your doctor's appointment.





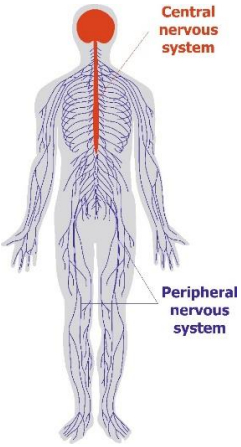

Golgi tendon organs are the sensory receptors for the **Golgi tendon reflex** which responds the opposite of muscle spindle activation, by causing the influenced muscle to relax. This helps protect the muscle and surrounding tissues from being injured when they are under large amounts of stress. When a weightlifter is struggling to hold the heavy weight above their body the Golgi tendon reflex responds by causing the person's affected muscles to relax, thereby dropping the weight.

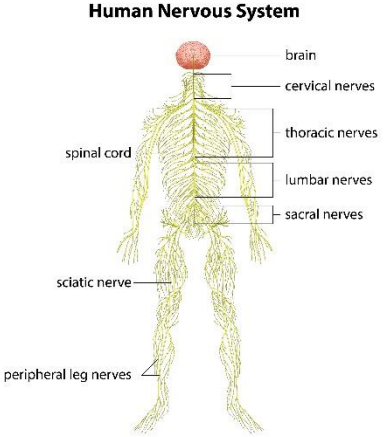



When the body is responding to painful stimuli the **withdrawal reflex,** or **flexor reflex** is activated as the person moves their body part away from a hot candle, for example. Sensory receptors send the information of the heat from the candle to the brain and the brain reacts by causing the hand to be pulled away from the candle (this is the neuromuscular response to the sensory input).

## *Autonomic Nervous System*

The nervous system is divided into the **central** and the **peripheral** nervous systems.

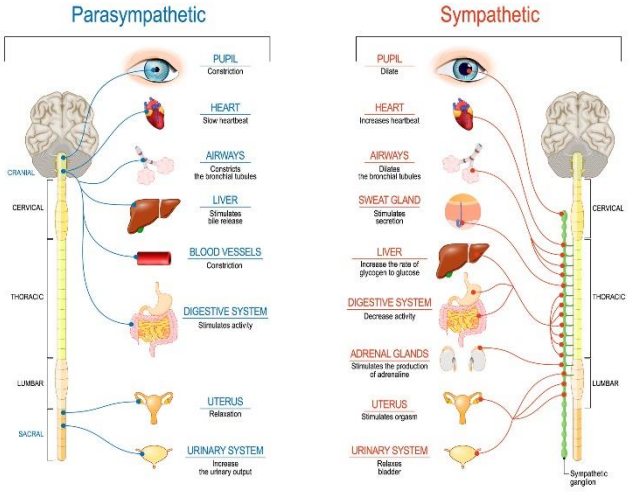



The peripheral nervous system is divided into the **somatic** and the **autonomic** nervous systems. These systems work together but have different functions in the human body.

The somatic nervous system is responsible for the things like the ability to voluntarily control muscle movements while the somatic nervous system is responsible for most functions that happen on their own, “automatically” or non-voluntarily.

The autonomic nervous system is further broken down into the **sympathetic** and the **parasympathetic** nervous systems. For health purposes it is best if our bodies spend some time in both systems, but not extended time in either.



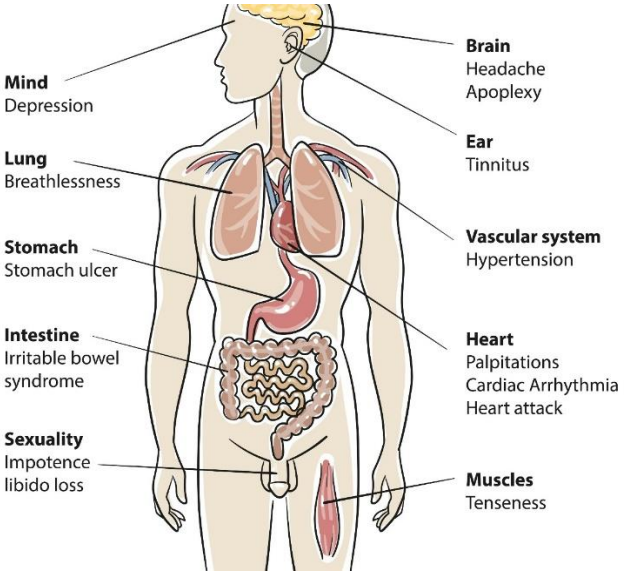

The **parasympathetic** nervous system is also known as the body's "rest and digest" system. When we are relaxing, digestion occurs, our heart rate reduces, and our natural bodily functions are easily recognizable. For example, if you must use the bathroom you will notice quickly. While necessary, we do not want to become lethargic, which could occur if we never get off the couch.

The **sympathetic** nervous system activates the "fight or flight" response during stressful situations. We are less aware of some of our bodily functions, like the need to use the bathroom and more aware of others when this system is active. Our digestion

slows because of a decrease blood flow caused by the body sending more to other areas that are essential in a scary situation (like being chased by a bear or performing on stage). The pupils dilate to increase visual awareness, the heart pumps blood to muscles and the airways relax, all this happens to us to either fight or flight in response to the stressful stimulus.

We do not want to be in the sympathetic nervous system all the time, it is not healthy for us. Just as being in the parasympathetic nervous system constantly is not healthy for us. When we are in the fight or flight response because of stressful situations, there are changes that occur in the body. Realistically, these events might be more like giving a big presentation at work and being stressed out about it for two weeks prior. When we are in the sympathetic nervous system it triggers the adrenals to produce **adrenaline** (also known as epinephrine) and **noradrenaline** (also known as norepinephrine). Usually when these hormones are released, they are preparing us for physical activity, like to run away from the big scary bear we talked about earlier. **Cortisol** is also released during these stressful situations.

When we are in this state too often it can have poor effects on our health. We notice the tension in our muscles, the superficial breathing and overall, not a feeling of wellness.




By utilizing both our sympathetic and parasympathetic nervous systems we can find a balance of healthy adrenaline releasing activities combined with relaxation to live a healthier lifestyle.

## *Warm up and Cool down*

When we are getting ready to perform any type of physical activity it is very important to include both warm up and cool down time for our bodies.

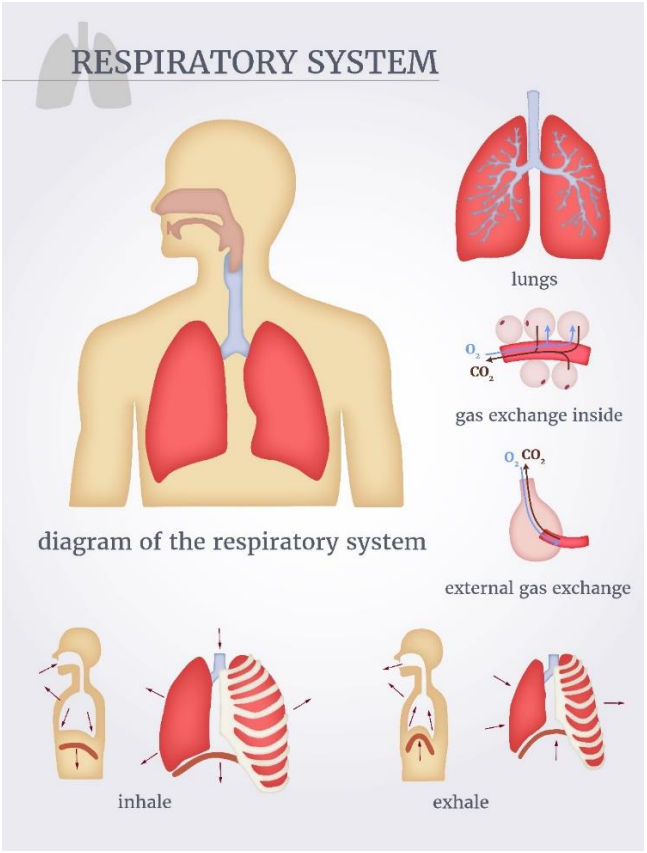
When we begin to exercise, we need to prepare our body for the movements we are about to make, we accomplish this through a warm up. When we warm up, we are activating the sympathetic nervous system, we are bringing more blood flow to our muscles and tissues, slowing down processes like digestion. This is the same system as the fight and flight response we just discussed, but we are utilizing it in a very different way than to get away from that scary bear. We are utilizing it as a tool to help our bodies better respond to the work, we are about to ask them to do. We are preparing them and helping prevent injury at the same time.

When we are almost ready to end our activity, we begin a cool down, allowing the body to come down from the sympathetic and into the parasympathetic nervous system. We slow down the pace and get the blood flowing back to things like the intestines in order to prepare for whatever comes next in our day.

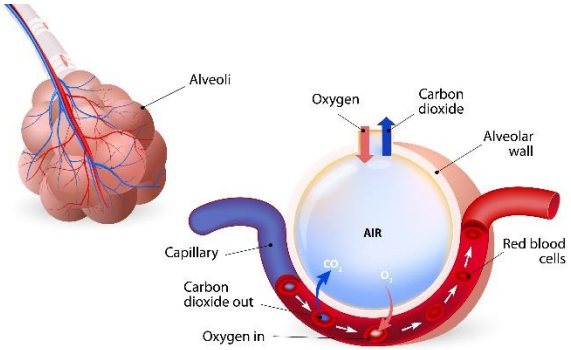
We always want to make sure we are leaving the body even. If we are practicing yoga, we counter pose. If we are going for a jog, we stretch out those jogging muscles.

## *Breathing*

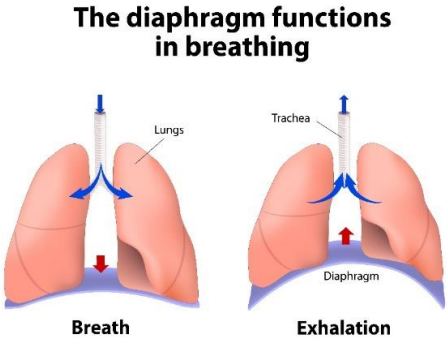
We breath without even thinking about it, that is wonderful. But how does it function? We need our autonomic nervous system, lungs, and muscles--just to name a few necessities.



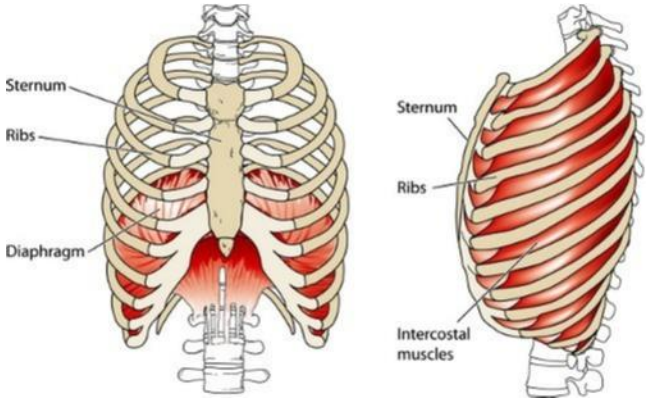
When we inhale the ribcage expands as the lungs fill with air. A gas exchange occurs in the alveolar sacs, oxygen and carbon dioxide go through what is known as diffusion as they are moved in and out of the bloodstream.




As we exhale, the lungs empty and the rib cage constricts accordingly. When we breath superficially we do not utilize our full lung capacity. This happens often when we are stressed. It is important to get the old air down in the lower portion of the lungs out and replenished with new air. When we breath deep, when are intentionally and consciously using our diaphragm, we want to keep the shoulders somewhat away from the ears and let the rib cage expand so this can all happen efficiently. The shoulders will lift slightly, and this is natural, we just do not want to lift using our shoulder muscles and compressing our inhale or make our inhale very superficial. The **diaphragm** is a large muscle that divides the lungs and upper internal structures from the lower organs. When we breath in the diaphragm lowers as the lungs are filled with air, when we exhale the diaphragm raises up as the lungs empty.




The muscles that run between the ribs are called our intercostal muscles. These muscles work to expand and constrict the ribcage. They run in an "X" pattern, the internal lying beneath the external. The **internal intercostal** and **external intercostal** muscles help us in the process of breathing as the ribcage expands and constricts with each breath.



How the breath plays into every day circumstances is amazing if we pay attention. Ever notice when you feel stress coming on you start to breath shallow and rapidly? Well, if you can recognize and control this reaction, you can control your response to the situation so much better than if you let it control you. Next time this happens pay attention, do not let it take over. Take a long deep breath in, using your diaphragm and start to count. Exhale the same count then hold your breath for the same number of seconds you inhaled and exhaled. Repeat a few times. See if you can sense the change in yourself. This type of breathing can bring that nervous energy down, it can help you become in better control of your mind, body, and reactions. When we are in control of our breathing our ability to be in control of our bodies and minds is astounding.

## *The effects of superficial breathing*

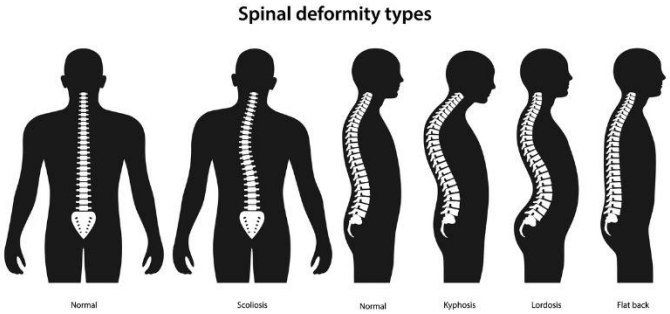
When we breath shallow for an extended period of time our secondary respiratory muscles become very active because we are not utilizing our primary breathing muscles like our diaphragm and our intercostal muscles. When this happens, the body adjusts or shortens. The neck muscles will start to adjust, our scalenes raise our first and second ribs during forced inspiration. However, when we breath superficially the possibility of those ribs being pulled up unnecessarily increases. This usually results in neck tension as well as an increased likelihood of forward head position. It affects the opposing muscle group as well and the surrounding tissues. When one part of the body is shortened, or its functions become somewhat distorted, it affects more than just that muscle. Often the scalenes and the pectoralis minor become shortened and it is a domino effect, possibly impacting the levator scapulae, upper trapezius, pectoralis major, serratus anterior, the rotator cuff muscles and the anterior deltoid. Not to mention the opposing muscles to the ones we just mentioned. The bicipital groove, where many muscles attach on the humerus can get restricted and the shoulder becomes almost stuck in medial rotation.

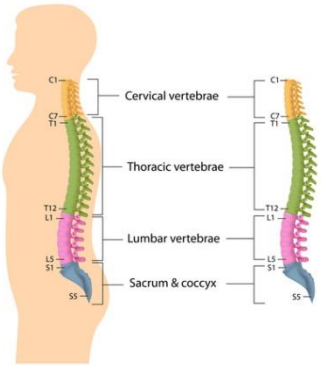
This is not a one size fits all scenario. It is just one of the many possibilities.

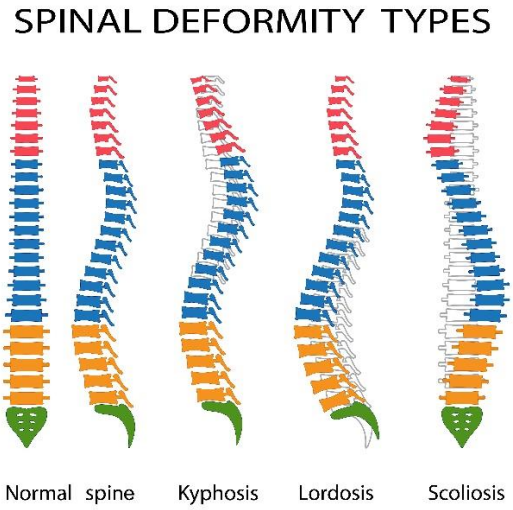
Observe the body position of the subject in the image above. She is in a hunched position. This is a common occurrence for many people every day. What do we do about this? Stop breathing so shallow to start, of course. Other things that might help are to start stretching out our anterior neck muscles and strengthen the overstretched posterior neck muscles. As you can see in the image below, a small change can lead to a big improvement in overall breathing.

## *Spinal Issues*

Spinal deformations or distortions can and do occur in the human spine. Some common ones are scoliosis, kyphosis, and lordosis. Sometimes there is a lack of curvature resulting in a flat back instead of more curvature. The spine does have naturally occurring curves. In a normally aligned spine, these curves are present and are normal.





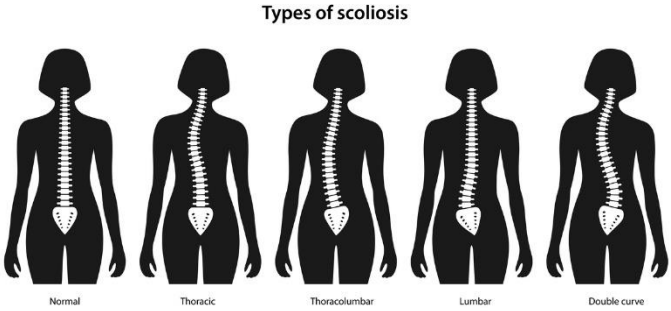

There can be many reasons for someone to have abnormal spinal issues, it is specific from person to person. We cannot assume everyone who suffers from an abnormal spinal curve does so for the same reason.

**Kyphosis** is an exaggerated thoracic curve; this is more commonly known as a hunch back. This condition is commonly accompanied by forward head position.

**Lordosis** is an exaggerated lumbar curve; this is more commonly known as a sway back. This condition is commonly accompanied by a forwardly protruding abdomen.

**Scoliosis** is the presence of one or more lateral curves in the spine. The vertebrae are twisted in addition to being curved laterally. Scoliosis in the

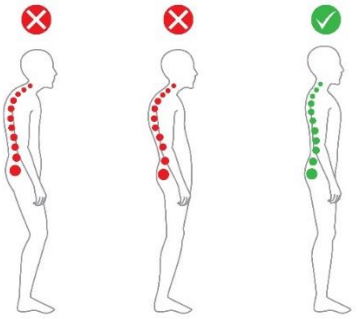
thoracic region is commonly associated with a rib hump and asthma.



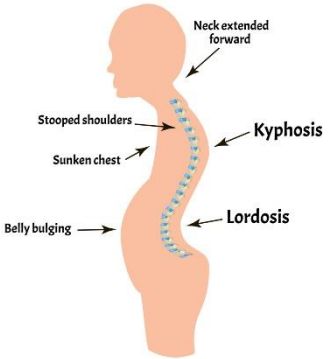

There are two types of scoliosis: structural and functional. Structural scoliosis involves the bones themselves while functional scoliosis is impacted by the muscles pulling the bones into a twist and lateral curve(s). There are more options for people who suffer from functional scoliosis than structural scoliosis because it largely involves the muscles. In structural scoliosis the bones are positioned in that way and, thus, they affect the muscles. However, we cannot so easily manipulate bones. Muscles are much easier to manipulate. Therefore, when we change what positions we put our bodies in we can influence functional scoliosis.

Often these spinal issues if not addressed can lead to other changes in the body like poor posture. In fact, one factor to getting issues like these, aside from structural scoliosis is poor posture. As stated, there are many possibilities, we are going to focus on posture.

## *Posture*



When someone has forward head position, it influences what happens to their entire spine. This is also true of kyphosis, lordosis, and many other misalignments. When the head jets out in front, typically the shoulders follow and, eventually, the lower back does as well. The abdomen is being chronically stretched, so it projects out in front because its muscles are weak.




What can we do about it? Strengthen the weak and overstretched muscles and stretch out the over tight muscles to bring fresh blood flow and circulation. We need to be conscious of our posture as we stand, sit, and move around. How and why do we end up with poor posture? Some of it is genetic, some of it is due to adaptive shortening and some of the reasons are unknown.

When we put our bodies in the same positions often, we are shortening and lengthening our tissues.

## *Kinetic Chain*

The entire body is linked together, everything is intertwined. When we move, what is occurring in the upper body can impact all the way down the chain and vice versa.

The kinetic chain is utilized as a checkpoint system for the alignment of the human body as either a static assessment or a dynamic one. We can use this system to help tell whether there is instability in the body. It helps us determine where it might be, some possibilities of where it could be originating and hopefully ideas on how to help. Depending on our training and abilities of course, remembering we do not possess the ability to diagnose unless we have that training.

We will start at the feet as we discuss the checkpoints of the kinetic chain:

1. Feet and ankles
2. Knees
3. Hips, pelvis, lower back, and legs
4. Spine, shoulders, neck, and head

When we are assessing someone's posture, we can observe them in static and moving positions and compare what we see.

- ✓ We begin at the feet, noting any differences on each side. Are the ankles the same angle on each side? Are the arches of the feet identical?

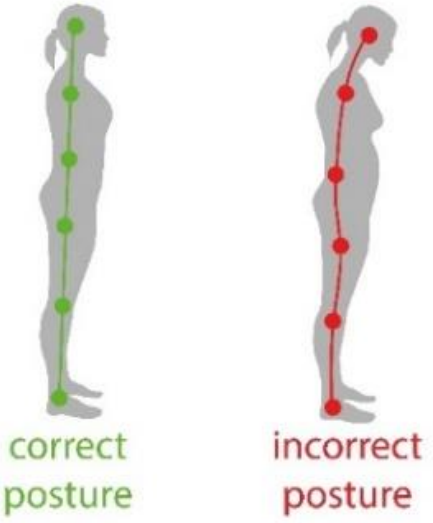
- ✓ Do we see any discrepancies from one knee joint to the other? Does one pull medial or lateral? Is one kneecap superior?

- ✓ Are the thighs rotated medially or laterally? What is happening at the hip joint?

- ✓ Is the pelvis in a neutral position? Is it tilted anteriorly or posteriorly? If so, is it the same on both sides? Is there a lack or exaggerated curvature of the spine?

- ✓ Are the shoulders level? Is medial or lateral rotation present in either of the shoulder joints? Are the scapulae retracted or protracted? Upwardly or downwardly rotated?

- ✓ Is the neck in line? Is the head rotated?



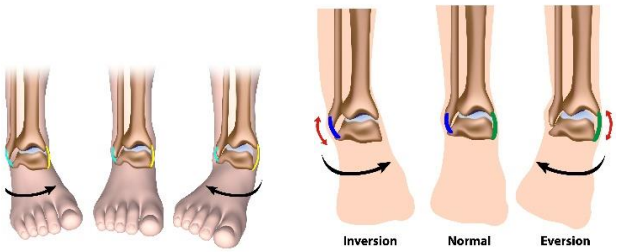

We want to observe from different angles, anterior, posterior, and lateral.

What happens if we have them stand with their muscles relaxed compared to if they are standing up actively with the muscles purposefully active? Their true posture will show when they are relaxed.

Once you get used to the checkpoints and how to see them the process will move smoothly and quickly. You might even start to use the information in your head without noticing.

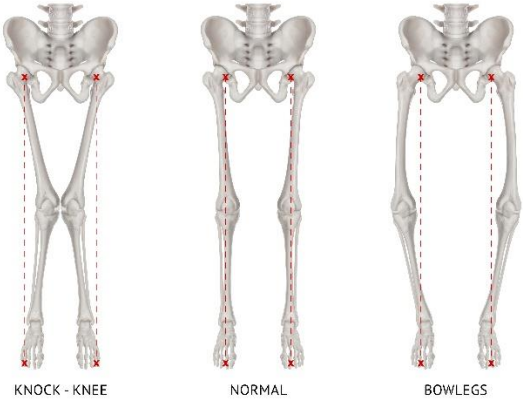
**Feet and ankles:**

The ankles can be neutral (neutral is good), or they can be angled medially or laterally. We also want to note if they are the same bilaterally. We notice the feet and the affect it has on the ankle joints.




**Knees:**

The knees can be in neutral. Again, checking to see if they appear identical or different. Noticing if the knee joint is being pulled medially or laterally or if it is limited in its range of motion. If so, is this happening on both sides or just on one? Can we see any movement out of alignment when we add movement to the assessment?

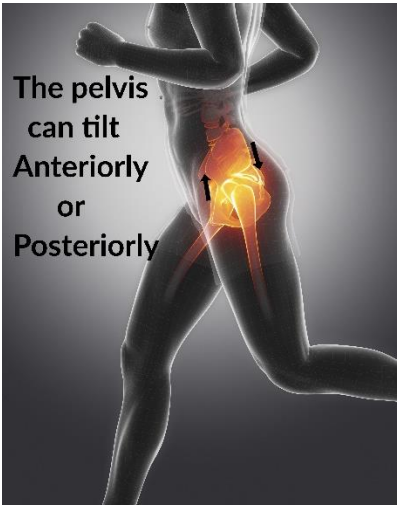



**Hips, pelvis, lower back, and legs:**

Do the hips appear even at the iliac crest?

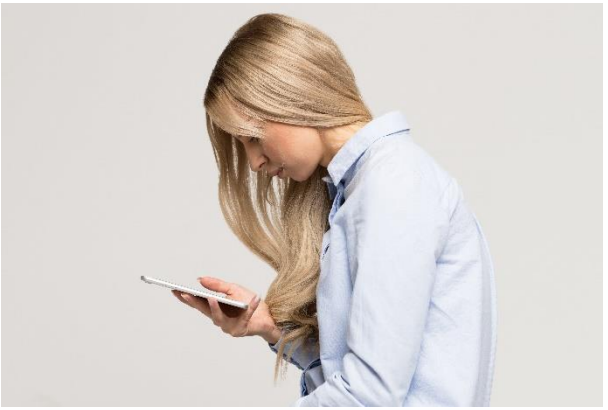
Does the pelvis appear even?

Do the thighs roll medially or laterally?



**Spine, shoulders, neck, and head:**

Are there unnecessary or exaggerated curves in the spine? Are the shoulders in a neutral position on one or both sides? How is the position of the neck and head?



When we notice how our bodies are affected by daily life through these check points, we can obtain important information about ourselves and how our bodies function.

We can also take this opportunity to try to bring some balance and stability to our bodies.

## *Common Occurrences*

Here are some findings I have seen often in my work. We will cover some ideas on how to cope with them and, hopefully, make our bodies stronger and more even in the process.

Often, I see people who are more developed on one side of the body than the other, this is normal. Everyone has a dominant side. Even those who are ambidextrous usually have a dominant side. Of course, this is going to vary from person to person and it will not be the case for everyone.

Sitting jobs often cause poor posture over the course of the workday.

Even with the best of efforts typically sitting in one position for so long can affect our bodies and our muscles will shorten and adapt to make sitting easier for us. We need to counter this to keep our bodies healthy.

**Please keep in mind these ideas are not to treat or diagnose anyone. They are simply observations. The ideas presented are general and are intended to help with body awareness.**

For sitting often, we most likely will need to strengthen the following muscles:

- Core (abdomen and back muscles)
- Hip flexors
- Glutes
- Mid back (rhomboids and mid trap)

Typically, we will need to stretch:

- Neck
- Chest
- Forearms
- Quads
- Calves

Of course, this will vary. If someone's hip flexors are not weak, just shortened, then they would stretch them out too. They might need to strengthen their hamstrings and/or quads as well.

For someone who stands and walks a lot during the day and suffers from poor posture we will typically need to strengthen:

- Core (abdomen and back muscles)
- Posterior neck
- Mid back (rhomboids and mid trap)

Typically, we will need to stretch:

- Sides of body (lats)
- Hamstrings
- Quads
- Calves
- Chest
- Anterior and lateral neck

This will vary also from person to person. They might also need to strengthen the glute muscles; it just depends on the person and what they do.

**Please see *appendix of exercises* for additional information.**

## *Open and Closed Chain Movements*

There are closed chain and open chain movements or exercises. Closed chain movements refer to an exercise where the distal ends of the limbs (the hands or feet) are in a stationary position against a force, like the ground when in a plank or a push up. The wrists, hands, fingers, and toes actively exert force against the floor or ground. Closed chain movements are usually related to core work.

Open chain movements refer to an exercise where the limbs are moving, for example a biceps curl. The limbs are in motion, actively bringing the weight closer to and away from the body. Open chain movements are not usually core exercises.

## *Daily Living and Proprioception*

How does the proprioception we discussed earlier play into exercise and daily life?

When we walk our feet sense changes in the ground as we move and adjust accordingly. This is proprioception. When you are doing a biceps curl the reason you do not bring the weight too close to your face is also because of proprioception. It just happens, automatically, and we want to keep it functioning that way.

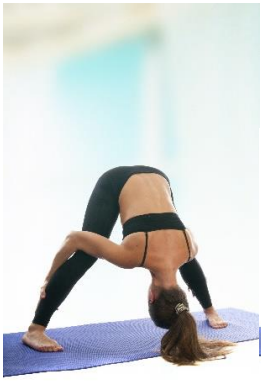
It is an interesting fact that the body only moves as fast as the nervous system is programmed to do so. Especially as we age it is important to keep our senses up and encourage our body and brain to be aware of the position of our bodies though proprioception.

It is amazing how all these things in our bodies can function so consistently and effectively without us even being very aware they are occurring at all.

## *Planes of Motion*

When we consider how we move on a daily basis we can find patterns. These patterns form muscular patterns and shortening, and imbalances can and often do occur. Sometimes if left too long, injuries happen. When we exercise and practice yoga, we can help to address some of those daily patterns if we are considerate in our planning. We want to incorporate all the planes of motion in our exercise or yoga routines.

When we flex at the hip and bend forward into a hamstring stretch or when we bend backwards into a backbend we are in the **sagittal plane** of motion. Movement occurring in this plane is either forwards or backwards.



When we move side to side we are in the **coronal plane**. If someone is in a side plank they are in the coronal plane, if their neck is rotated to look up at their hand then the neck is in the transverse plane.

Rotational movements like twists occur in the **transverse plane**. We can be in multiple planes of motion simultaneously. We can see this clearly in the two images above. We also will find this in our lives daily if we pay attention.

When we combine all these movements, we will set ourselves up for a successful plan to help even out the body. In general, we all are different but when we take into consideration our specific issues and individuality, we can find a good place to start.

Let us review:

**Sagittal plane**: forward or backward movements

**Coronal plane**: side to side movements

**Transverse plane**: rotational movements

It is how we use this information to our advantage that can make the difference.

## *Planes and Muscles*

In our previous book we talked about the prime mover muscles, opposing muscles and helper muscles. We will review here to prepare for the next topic: Planes and Muscles, in which we will cover the main prime movers, the helper muscles and what plane of motion the pose is in. Please be sure you have reviewed the *planes of motion* information in the previous section.

**Agonist**: prime mover(s)

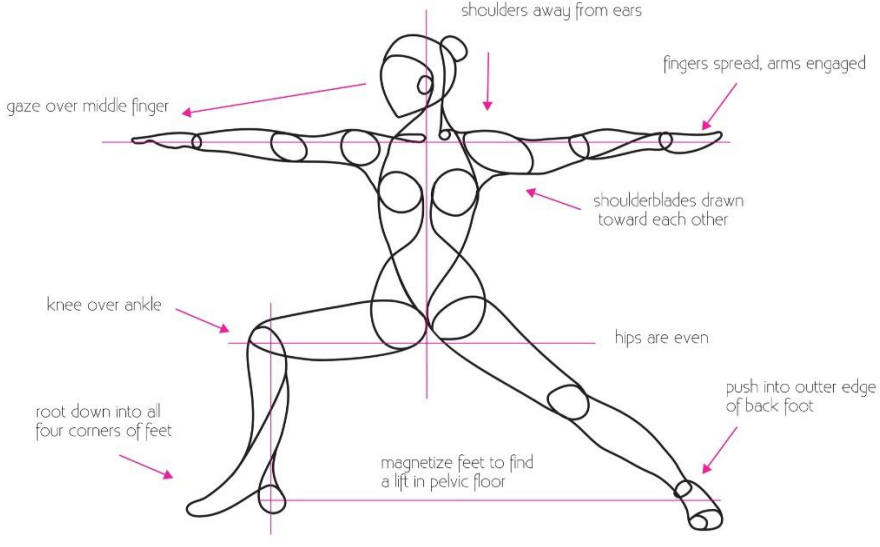
**Antagonist**: opposing muscle(s)

**Synergist**: helper muscles. These muscles assist the prime mover in making the movement occur. When these helper muscles are working to stabilize movement around a joint, they are called **fixators**.

As we explore a few poses, will be focusing on the main joint each pose utilizes. We do acknowledge the entire body is always involved and there is more happening elsewhere in the body. These are basic muscle groups from my knowledge of anatomy. There are always many opinions, these are mine.

**Please see *Origin, Insertion & Action* for muscle review.**

# Warrior II




VIRABHADRASANA II

**Pose: Warrior II**

Plane of Motion:
**Coronal**
**Transverse** at hip and neck

Front Leg:

Agonist: iliopsoas, hip flexor muscles, hamstrings

Antagonist: glute max

Stabilizers: quads, medial hip rotators and abductors

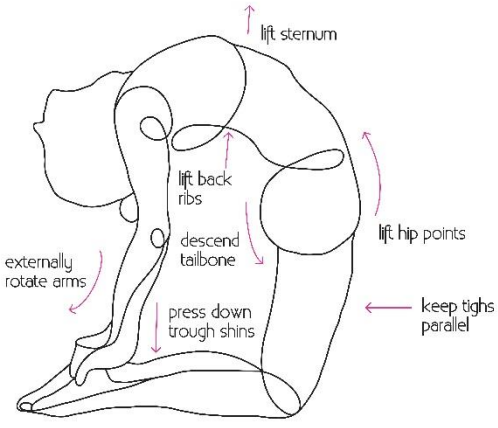
Back Leg:

Agonist: glute max

Antagonist: iliopsoas

Synergists: quadriceps, TFL

# Camel Pose




USTRASANA

**Pose: Camel**

**Plane of Motion:**
**Sagittal**

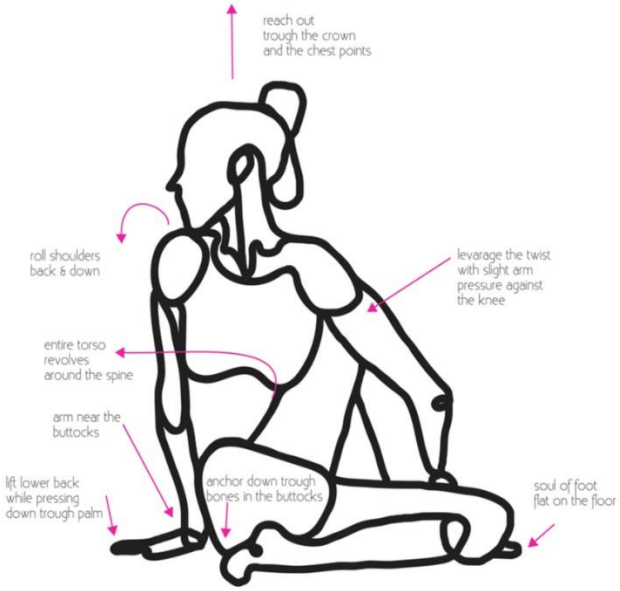
Agonist: glute max, back muscles, rhomboids, middle trap, lateral shoulder rotators

Antagonist: iliopsoas, abdominals, pectoralis major and minor

Synergists: Hip adductors, glute min and med

# half lord of the fishes pose

ARDHA
MATSYENDRASANA



**Pose: Half Lord of the fishes**

Plane of Motion:
**Transverse**

Top Leg:

Agonist: iliopsoas, hip flexor muscles, hamstrings

Antagonist: glute max

Synergists: quads, medial hip rotators, hip adductors

Lower Leg:

Agonist: glute max, piriformis, lateral hip rotators, hamstrings

Antagonist: hip adductors, hip medial rotators

Synergists: quadriceps

**Pose: Revolved Lunge**

Notice how we are obviously in multiple planes of motion in the image of revolved lunge above.

The front hip is flexed, the knee is flexed (what muscles contract in hip flexion? What muscles flex the knee?) **Iliopsoas; Hamstrings and Calves**

The back hip and leg are extended (what muscles extend the hip and what muscles extend the leg?) **Glute max; Quads**

How are they staying in line? (what muscles are acting as synergist/fixators here?)
**Hip Adductors/Abductors**

This is how we put it together: focus on which muscles create what actions. Once we figure out the agonist, we look at the opposite muscle, it is the antagonist.

Think about how in daily life we are in multiple planes of motion. Think about how important it is to be in all the planes of motion and not just one and how we need to utilize all our muscles.

We need to utilize the muscles we commonly engage as agonists and intentionally utilize them as antagonists. Moving in the opposite directions we find ourselves in often will typically turn the antagonists into the agonists.

These muscles will be different for everyone, although there will be similarities often. Regardless, over time, with effort and consistency, this can help even out the body.

## *Origin, Insertion & Action*

O= Origin -the proximal and more stable end of the muscle attachment.

I= Insertion -the more distal and mobile end of the muscle attachment

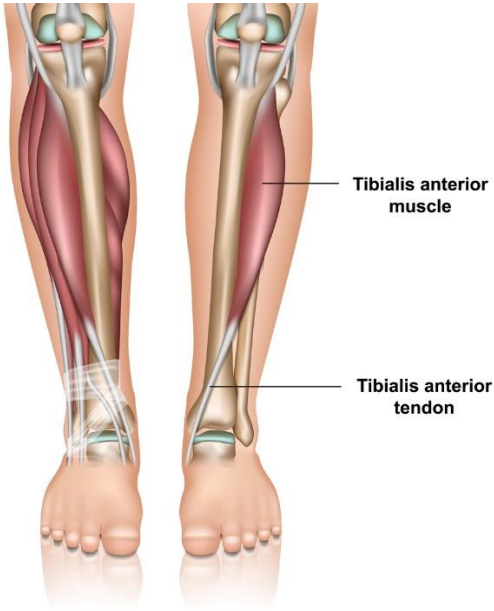
A= Action -the movement the muscle makes when it contracts. We will cover both isolated actions and integrated actions.

**Concentric contraction:** the muscle shortens resulting in a reduce the angle between two joints. During a movement, the muscles which contract concentrically are usually the **agonist** or prime move muscles.

**Eccentric contraction:** the muscle lengthens as the agonist is concentrically contracting. Eccentric muscles are usually the **antagonist** muscles or opposing muscles to the prime mover (agonist).

**Isometric contraction:** the muscle contracts without moving.

We are going to include the functional aspects of the muscles we will cover in the actions, how we utilize them when we move. Notice the concentric action and eccentric actions are usually the opposite of each other. When a muscle works in a concentric contraction it is typically the agonist. When it works as the antagonist, it is usually functioning utilizing an eccentric contraction.




**Tibialis Anterior**

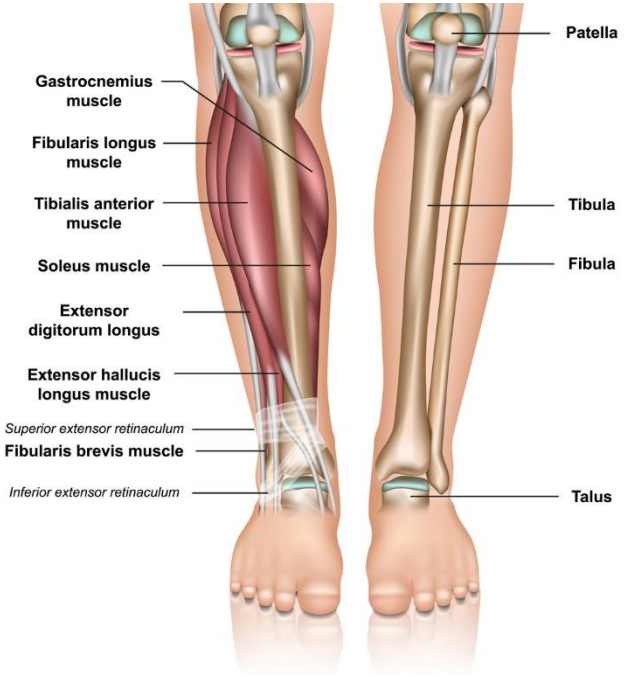
**O:** Tibia: lateral condyle and proximal two thirds lateral surface

**I:** Plantar and medial surface of medial cuneiform and base of first metatarsal

**Isolated Action**: Concentric contraction: accelerates dorsiflexion, inversion

**Integrated Action**: Eccentric contraction: decelerates plantarflexion, eversion

**Isometric contraction**: stabilizes foot arch




**Soleus**

**O:** Posterior surface of fibular head, proximal one third of fibular shaft and from the posterior of tibia

**I:** Achilles tendon to calcaneus

**Isolated Action**: Concentric contraction: accelerates plantarflexion

**Integrated Action**: decelerates ankle dorsiflexion

**Isometric contraction**: stabilizes foot and ankle

## Gastrocnemius

**O:** Lateral and medial femoral condyles, posterior aspect

**I:** Achilles tendon to calcaneus

**Isolated Action**: Concentric contraction: accelerates plantarflexion

**Integrated Action**: decelerates ankle dorsiflexion

**Isometric contraction**: stabilizes foot and ankle

## Fibularis Longus
***(also known as peroneus longus)***

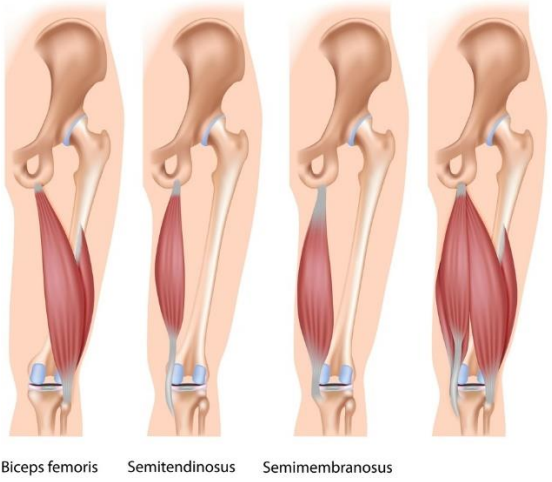
**O:** Tibia; lateral condyle, Fibula; head and proximal two thirds of lateral surface

**I:** Medial cuneiform; lateral surface, Base of first metatarsal; lateral side

**Isolated Action**: Concentric contraction: plantarflexes and everts foot

**Integrated Action**: decelerates ankle dorsiflexion

**Isometric contraction**: stabilizes foot and ankle




## Biceps femoris

*long head* **O:** Ischium; ischial tuberosity and part of the sacrotuberous ligament

*short head* **O:** Femur; posterior lower one third

**Shared Insertion:** Fibular head

*long head*:
**Isolated Action**: Concentric contraction: accelerates knee flexion, hip extension, externally rotates tibia

**Integrated Action**: Eccentric contraction: decelerates knee extension, decelerates hip flexion, decelerates internal rotation of tibia mid gait

**Isometric contraction**: stabilizes hips, lower back, knee

*short head:*

**Isolated Action**: Concentric contraction: accelerates knee flexion and external rotation of tibia

**Integrated Action**: Eccentric contraction: decelerates knee extension, internal rotation of tibia

**Isometric contraction**: stabilizes knee

## Semimembranosus

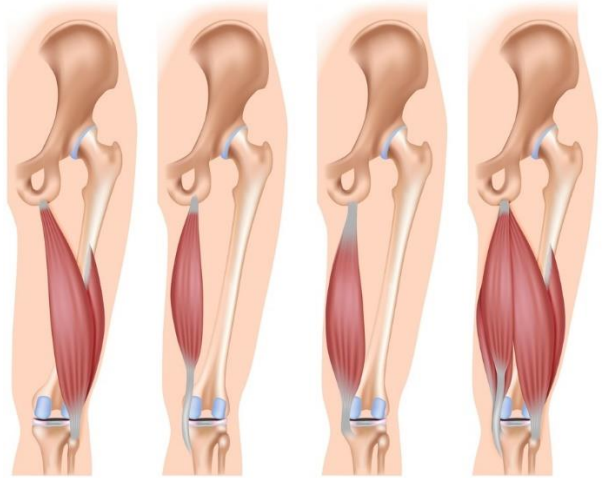
**O:** Ischium; ischial tuberosity

**I:** Posterior aspect of tibia; medial tibial condyle

**Isolated Action**: Concentric contraction: accelerates knee flexion, hip extension, internal rotation of tibia

**Integrated Action**: Eccentric contraction: decelerates knee flexion, hip flexion, external rotation of tibia

**Isometric contraction**: stabilizes hips, lower back, knee




## Semitendinosus

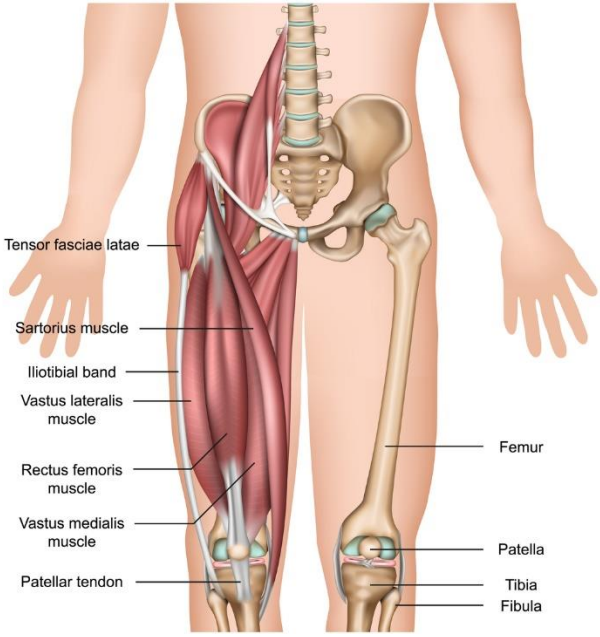
**O:** Ischium; ischial tuberosity and part of the sacrotuberous ligament

**I:** Proximal aspect of tibia; medial tibial condyle

**Isolated Action**: Concentric contraction: accelerates knee flexion, hip extension, internal rotation of tibia

**Integrated Action**: Eccentric contraction: decelerates knee flexion, hip flexion, external rotation of tibia

**Isometric contraction**: stabilizes hips, lower back, knee




**Vastus Lateralis**

**O:** Greater trochanter; anterior and inferior border, Gluteal tuberosity; lateral region, lateral lip of linea aspera of femur

**I:** Base of patella, Tibia; tuberosity

**Isolated Action**: Concentric contraction: accelerates knee extension

**Integrated Action**: Eccentric contraction: decelerates knee flexion, adduction, internal rotation

**Isometric contraction**: stabilizes knee

## Vastus Medialis

**O:** Intertrochanteric line, linea aspera; medial lip, proximal medial supracondylar line of femur

**I:** Base of patella, Tibia; tuberosity

**Isolated Action**: Concentric contraction: accelerates knee extension

**Integrated Action**: Eccentric contraction: decelerates knee flexion, adduction, internal rotation

**Isometric contraction**: stabilizes knee

## Vastus Intermedius

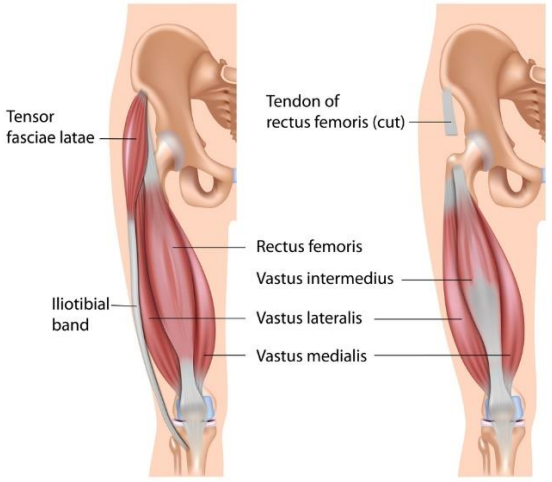
**O:** Anterior-lateral femur; upper two thirds

**I:** Base of patella, Tibia; tuberosity

**Isolated Action**: Concentric contraction: accelerates knee extension

**Integrated Action**: Eccentric contraction: decelerates knee flexion, adduction, internal rotation

**Isometric contraction**: stabilizes knee




**Rectus Femoris**

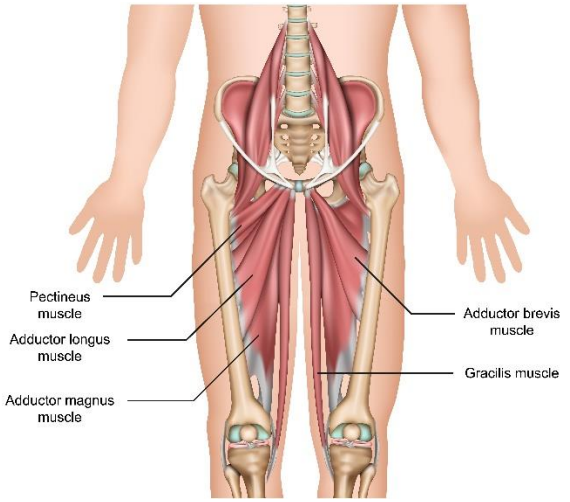
**O:** Ilium; anterior-inferior spine

**I:** Base of patella, Tibia; tuberosity

**Isolated Action**: Concentric contraction: accelerates knee extension

**Integrated Action**: Eccentric contraction: decelerates knee flexion, adduction, internal rotation, decelerates hip extension

**Isometric contraction**: stabilizes knee, lower back, hips




## Adductor Longus

**O:** Pelvis; anterior surface of inferior pubic ramus

**I:** Linea aspera of the femur; proximal one third

**Isolated Action**: Concentric contraction: accelerates hip adduction, flexion, internal rotation

**Integrated Action**: Eccentric contraction: decelerates hip abduction, extension, external rotation

**Isometric contraction**: stabilizes hips, lower back, knee

**Adductor Magnus**
*anterior fibers*

**O:** Ischium; ischial ramus

**I:** Femur; linea aspera

**Isolated Action**: Concentric contraction: accelerates hip adduction, flexion, internal rotation

**Integrated Action**: Eccentric contraction: decelerates hip abduction, extension, external rotation

Dynamically stabilizes hips, lower back, knee

**Adductor Magnus**
*posterior fibers*

**O:** Ischium; ischial tuberosity

**I:** Femur; adductor tubercle

**Isolated Action**: Concentric contraction: accelerates hip adduction, flexion, internal rotation

**Integrated Action**: Eccentric contraction: decelerates hip abduction, extension, external rotation

**Isometric contraction**: stabilizes hips, lower back, knee

## Adductor Brevis

**O:** Pelvis; anterior surface of inferior pubic ramus

**I:** Linea aspera of the femur; proximal one third

**Isolated Action**: Concentric contraction: accelerates hip adduction, flexion, internal rotation

**Integrated Action**: Eccentric contraction: decelerates hip abduction, extension, external rotation

**Isometric contraction**: stabilizes hips, lower back, knee

## Gracilis

**O:** Pubis; anterior aspect of lower body

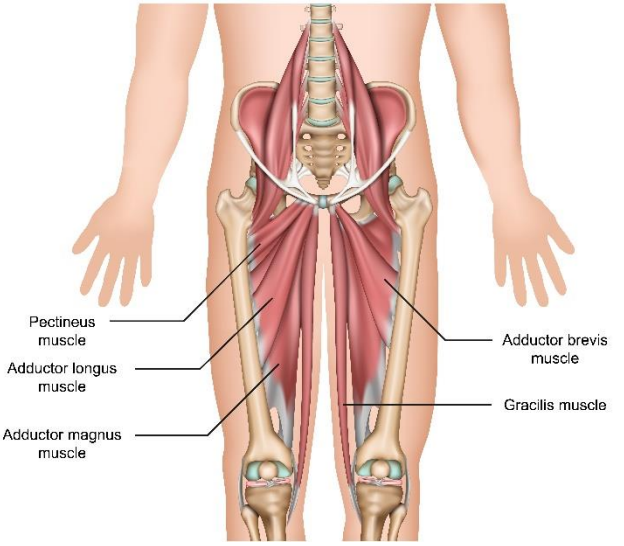
**I:** Tibia; proximal medial surface

**Isolated Action**: Concentric contraction: accelerates hip adduction, flexion, internal rotation

Synergist in internal rotation of tibia

**Integrated Action**: Eccentric contraction: decelerates hip abduction, extension, external rotation

**Isometric contraction**: stabilizes hips, lower back, knee




**Pectineus**

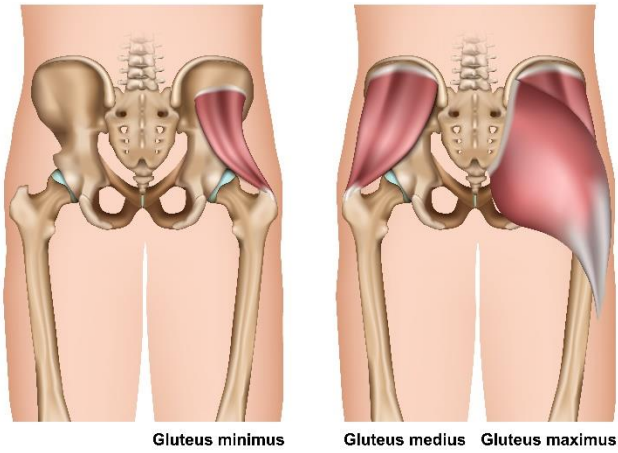
**O:** Superior pubic ramus of pelvis; pectineal line

**I:** Pectineal line on posterior surface of upper femur

**Isolated Action**: Concentric contraction: accelerates hip adduction, flexion, internal rotation

**Integrated Action**: Eccentric contraction: decelerates hip abduction, extension, external rotation

**Isometric contraction**: Stabilizes Hips, lower back, knee




## Gluteus Minimus

**O:** Ilium; between anterior and inferior gluteal lines

**I:** Femur; greater trochanter

**Isolated Action**: Concentric contraction: accelerates hip abduction, internal rotation

**Integrated Action**: Eccentric contraction: decelerates hip adduction, external rotation

**Isometric contraction**: stabilizes hips, lower back

## Gluteus Medius

**O:** Ilium; outer surface

**I:** Femur; lateral surface of greater trochanter

**Isolated Action**: Concentric contraction:

*anterior fibers*: accelerates hip abduction, internal rotation

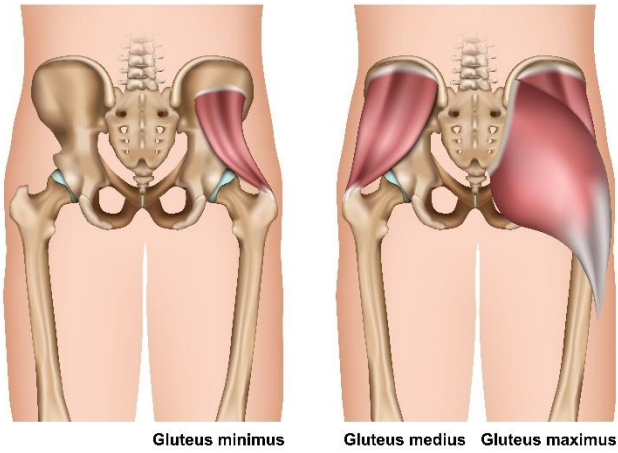
*posterior fibers*: accelerates hip abduction, external rotation

**Integrated Action**: Eccentric contraction:

*anterior fibers:* decelerates hip adduction, external rotation

*posterior fibers:* decelerates hip adduction, internal rotation

**Isometric contraction**: stabilizes hips, lower back




## Gluteus Maximus

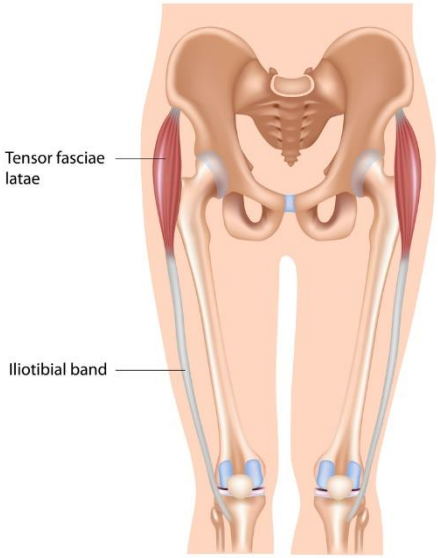
**O:** Pelvis; outer ilium, Sacrum and Coccyx; posterior side, and part of sacrotuberous and posterior sacroiliac ligaments

**I:** Femur; gluteal tuberosity and Iliotibial tract

**Isolated Action**: Concentric contraction: accelerates hip extension, external rotation

**Integrated Action**: Eccentric contraction: decelerates hip flexion, internal rotation decelerates internal rotation of tibia via IT band

**Isometric contraction**: stabilizes hips, lower back




**Tensor Fasciae Latae**

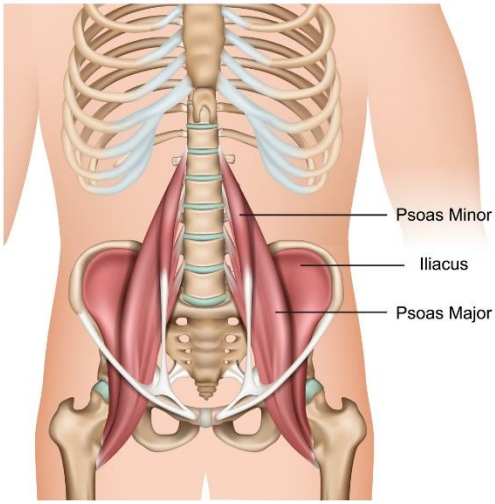
**O:** Iliac Crest; outer surface just posterior to anterior-superior iliac spine

**I:** Iliotibial band; proximal one third

**Isolated Action**: Concentric contraction: accelerates hip flexion, abduction, internal rotation

**Integrated Action**: Eccentric contraction: decelerates hip extension, adduction, external rotation

**Isometric contraction**: stabilizes hips, lower back




**Psoas Major**

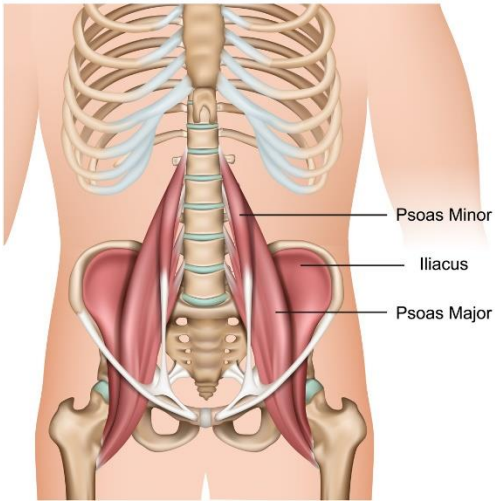
**O:** T12; transverse process and vertebral bodies, L1-L5 vertebrae including intervertebral discs

**I:** Femur; lesser trochanter

**Isolated Action**: Concentric contraction: accelerates hip flexion, external rotation, extends and rotates lumbar spine

**Integrated Action**: Eccentric contraction: decelerates hip extension, internal rotation

**Isometric contraction**: stabilizes hips, lower back




**Iliacus**

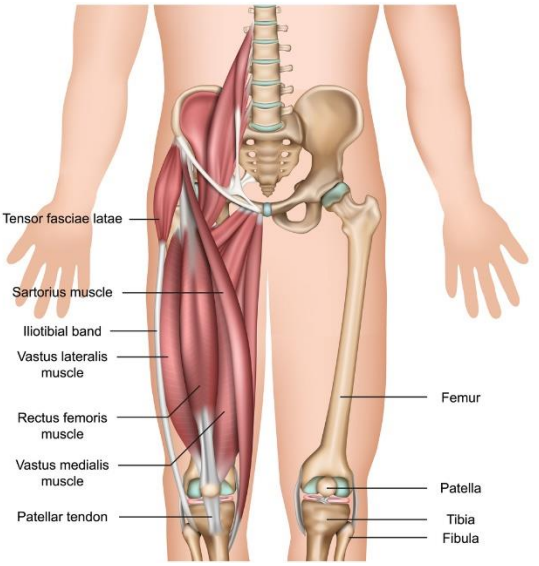
**O:** T12; transverse process and vertebral bodies, L1-L5 vertebrae including intervertebral discs

**I:** Femur; lesser trochanter

**Isolated Action**: Concentric contraction: accelerates hip flexion, external rotation

**Integrated Action**: Eccentric contraction: decelerates hip extension,
decelerates hip internal rotation

**Isometric contraction**: stabilizes hips, lower back




**Sartorius**

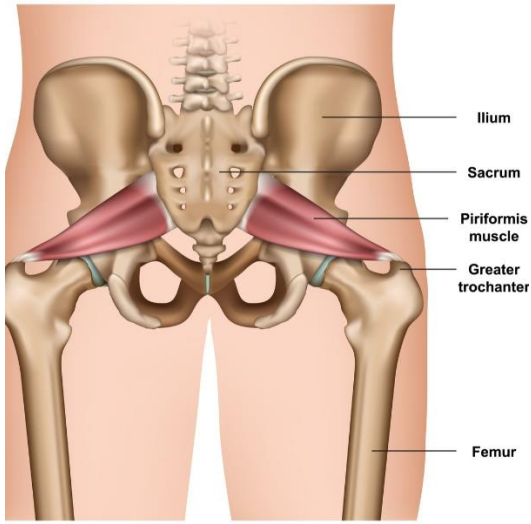
**O:** Pelvis; anterior-superior iliac spine

**I:** Tibia; proximal medial surface

**Isolated Action**: Concentric contraction:
accelerates hip flexion, external rotation, abduction
accelerates knee flexion, internal rotation

**Integrated Action**: Eccentric contraction:
decelerates hip extension, internal rotation
decelerates knee extension, external rotation

**Isometric contraction**: stabilizes hips, lower back, knee




**Piriformis**

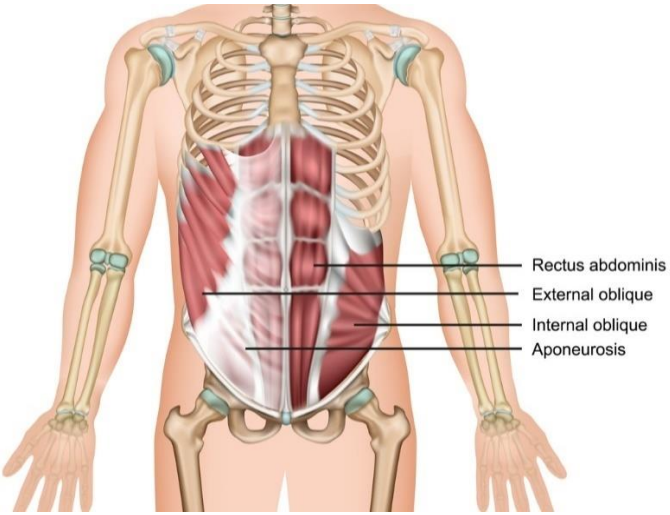
**O:** Sacrum; anterior aspect

**I:** Femur; greater trochanter

**Isolated Action**: Concentric contraction: accelerates hip external rotation, abduction, extension

**Integrated Action**: Eccentric contraction: decelerates hip internal rotation, adduction, flexion

**Isometric contraction**: stabilizes hips, sacroiliac joints




**Rectus Abdominis**

**O:** Pelvis; pubic symphysis

**I:** Sternum; xyphoid process, Ribs 5-7

**Isolated Action**: Concentric contraction: accelerates spinal flexion, lateral flexion, rotation

**Integrated Action**: Eccentric contraction: decelerates spinal extension, lateral flexion, rotation

**Isometric contraction**: stabilizes hips, lower back

## External Obliques

**O:** Ribs 4-12; external surface

**I:** Pelvis; anterior iliac crest, linea alba, and contralateral rectus sheaths

**Isolated Action**: Concentric contraction: accelerates spinal flexion, lateral flexion, contralateral rotation

**Integrated Action**: Eccentric contraction: decelerates spinal extension, lateral flexion, rotation

**Isometric contraction**: stabilizes hips, lower back

## Internal Obliques

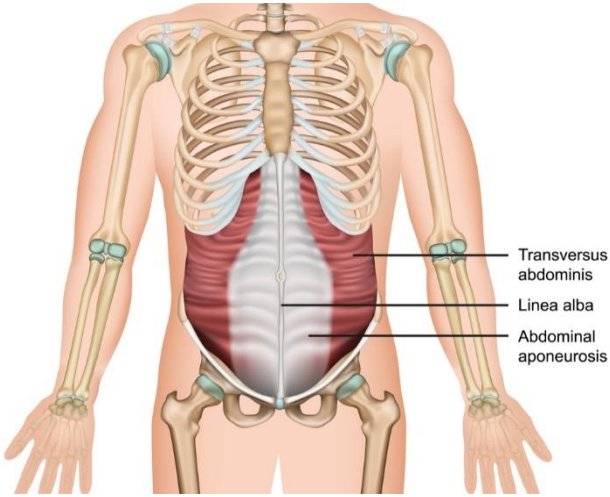
**O:** Pelvis; anterior two thirds iliac crest and thoracolumbar fascia

**I:** Ribs 9-12, linea alba, and contralateral rectus sheaths

**Isolated Action**: Concentric contraction: accelerates spinal flexion, lateral flexion, ipsilateral rotation

**Integrated Action**: Eccentric contraction: decelerates spinal extension, lateral flexion, rotation

**Isometric contraction**: stabilizes hips, lower back



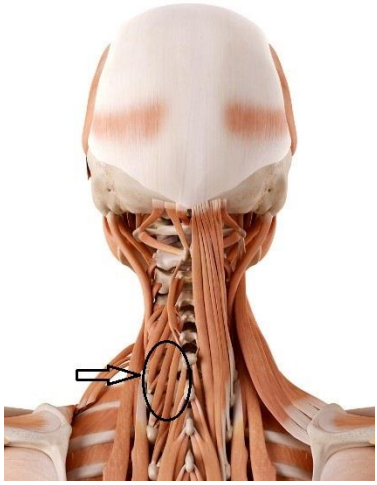

**Transverse Abdominis**

**O:** Pelvis; anterior two thirds iliac crest, thoracolumbar fascia, Ribs 7-12

**I:** Linea alba, and contralateral rectus sheaths

**Isolated Action**: increases intra-abdominal pressure, supports abdominal viscera

**Isometric contraction**: stabilizes hips, lower back



**Multifidus**

**O:** Sacrum; posterior aspect, processes of lumbar, thoracic, and cervical spine

**I:** Spinous processes of vertebrae one to four segments superior to the origin

**Isolated Action**: Concentric contraction: accelerates spinal extension, contralateral rotation

**Integrated Action**: Eccentric contraction: decelerates spinal flexion, rotation

**Isometric contraction**: stabilizes spine

## Superficial Erector Spinae

*Iliocostalis, Longissimus, and Spinals*

**Shared Origin:** Pelvis; iliac crest, sacrum, and transverse processes T11-L5

**Insertions:** broken down and listed below

**Iliocostalis:**

*Lumborum:* Ribs 7-12; inferior border

*Thoracis:* Ribs 1-6; superior border

*Cervicis:* Transverse processes C4-C6

Cervical (cervicis) Thoracic (thoracis) Lumbar (lumborum)

**Longissimus:**

*Thoracis:* Transverse processes T1-T12; Ribs 2-12

*Cervicis:* Transverse processes C6-C2

*Capitis:* Skull; mastoid process

**Spinalis:**

*Thoracis:* Transverse processes T7-T4

*Cervicis:* Transverse processes C3-C2

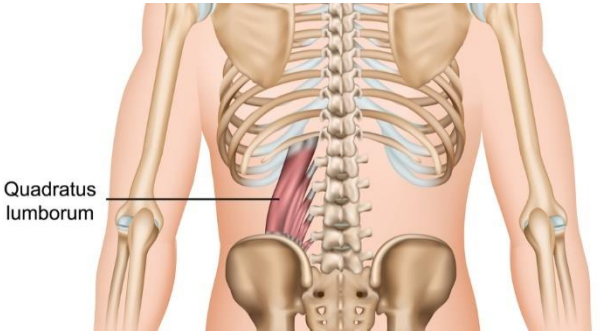
*Capitis:* Skull; occipital bone between superior and inferior nuchal lines

**Shared actions:**

Isolated **Action**: Concentric contraction:
accelerates spinal extension, lateral flexion, rotation

Integrated **Action**: Eccentric contraction:
decelerates spinal flexion, lateral flexion, rotation

Dynamically stabilizes spine during functional movements




**Quadratus Lumborum**

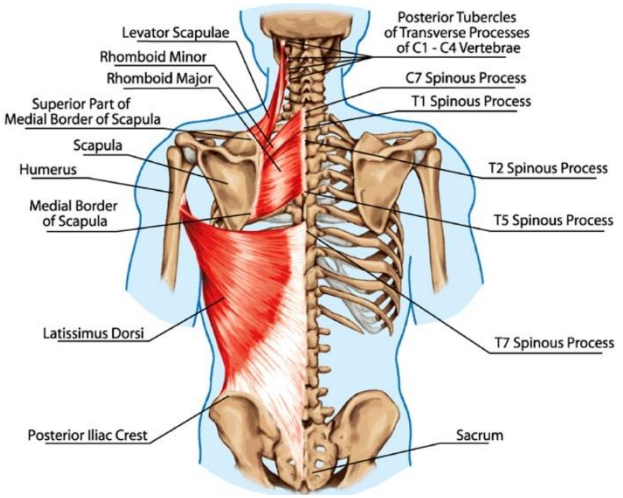
**O:** Pelvis; iliac crest

**I:** Twelfth rib, Transverse process L2-L5

**Isolated Action**: lateral spinal flexion

**Integrated Action**: Eccentric contraction: decelerates contralateral spinal flexion

**Isometric contraction**: stabilizes hips, lower back




**Latissimus dorsi**

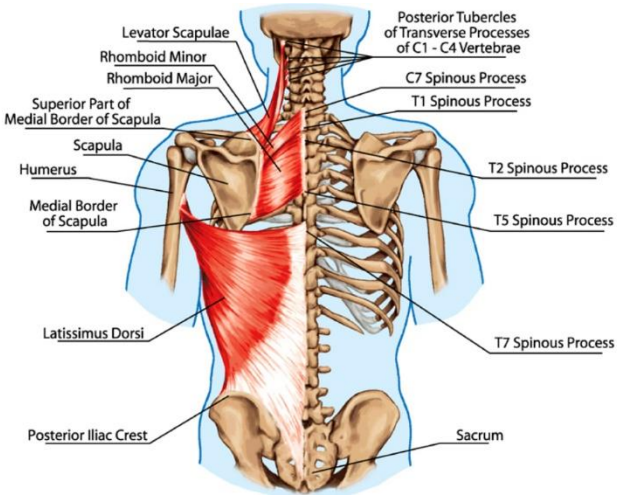
**O:** Spinous processes T7-T12, Pelvis; iliac crest, Thoracolumbar fascia, Ribs 9-12

**I:** Scapula; inferior angle, Humerus; intertubercular groove

**Isolated Action**: Concentric contraction: accelerates shoulder extension, adduction, internal rotation

**Integrated Action**: Eccentric contraction: decelerates shoulder flexion, abduction, external rotation, decelerates spinal flexion

**Isometric contraction**: stabilizes hips, lower back, shoulder




**Rhomboid Major**

**O:** Spinous processes C7-T5

**I:** Scapula; medial border

**Isolated Action**: Concentric contraction: retraction, downward rotation of scapula

**Integrated Action**: Eccentric contraction: decelerates protraction, upward rotation of scapula

**Isometric contraction**: stabilizes scapula

## Rhomboid Minor

**O:** Spinous processes C7-T1

**I:** Scapula; medial border superior to spine

**Isolated Action**: Concentric contraction:
retraction, downward rotation of scapula

**Integrated Action**: Eccentric contraction:
decelerates protraction, upward rotation of scapula

**Isometric contraction**: stabilizes scapula

## Levator Scapulae

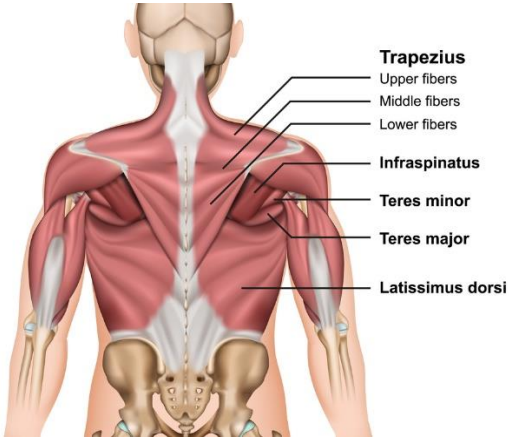
**O:** Transverse processes C1-C4

**I:** Scapula; superior vertebral border

**Isolated Action**: Concentric contraction:
accelerates cervical extension, lateral flexion, ipsilateral rotation when scapulae is anchored
assists in elevation, downward rotation of scapulae

**Integrated Action**: Eccentric contraction:
decelerates cervical flexion, contralateral cervical rotation, lateral flexion
decelerates scapular depression, upward rotation when neck is stabilized

**Isometric contraction**: stabilizes cervical spine, scapulae




**Upper Trapezius**

**O:** Skull; external occipital protuberance, Spinous process of C7

**I:** Clavicle; lateral third, Scapula; acromion process

**Isolated Action**: Concentric contraction:
accelerates cervical extension, lateral flexion, rotation
accelerates elevation of scapula

**Integrated Action**: Eccentric contraction:
decelerates cervical flexion, lateral flexion, rotation
decelerates depression of scapula

**Isometric contraction**: stabilizes cervical spine, scapula

## Middle Trapezius

**O:** Spinous process T1-T5

**I:** Scapula; acromion process, spine of scapula; superior aspect

**Isolated Action**: Concentric contraction: accelerates retraction of scapula

**Integrated Action**: Eccentric contraction: decelerates elevation of scapula

**Isometric contraction**: stabilizes scapula

## Lower Trapezius

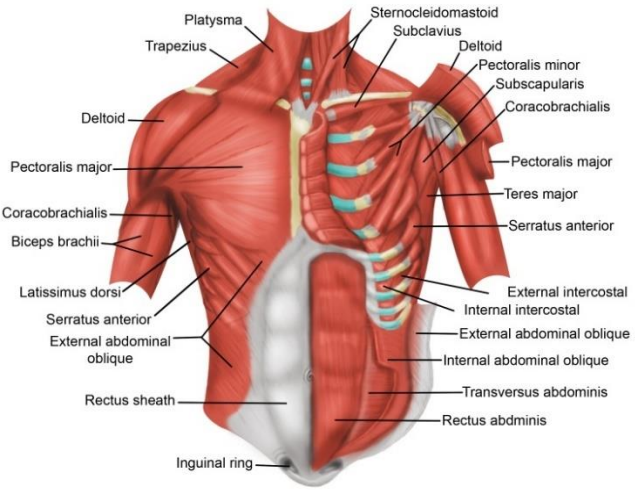
**O:** Spinous process T6-T12

**I:** Spine of scapula

**Isolated Action**: Concentric contraction: accelerates depression of scapula

**Integrated Action**: Eccentric contraction: decelerates elevation of scapula

**Isometric contraction**: stabilizes scapula




**Serratus Anterior**

**O:** Ribs 4-12

**I:** Scapula; medial border

**Isolated Action**: Concentric contraction: accelerates scapular protraction

**Integrated Action**: Eccentric contraction: decelerates dynamic scapular retraction

**Isometric contraction**: stabilizes scapula

## Pectoralis Major

**O:** Clavicular: Clavicle; anterior surface

Sternocostal: Sternum; anterior surface, cartilage of ribs 1-7

**I:** Humerus; greater tubercle

**Isolated Action**: Concentric contraction:
*clavicular fibers*: accelerates shoulder flexion
*sternocostal fibers*: accelerates horizontal adduction, internal rotation

**Integrated Action**: Eccentric contraction: decelerates shoulder extension, horizontal abduction, external rotation

**Isometric contraction**: stabilizes shoulder girdle

## Pectoralis Minor

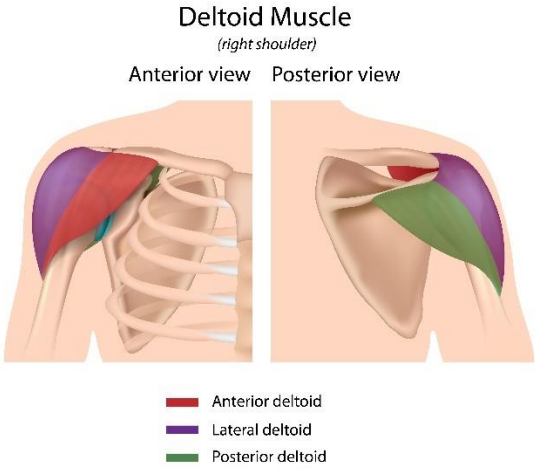
**O:** Ribs 3-5

**I:** Scapula; coracoid process

**Isolated Action**: Concentric contraction: protracts scapula

**Integrated Action**: Eccentric contraction: decelerates scapular retraction

**Isometric contraction**: stabilizes shoulder girdle




## Anterior Deltoid

**O:** Clavicle; lateral third

**I:** Humerus; deltoid tuberosity

**Isolated Action**: Concentric contraction: accelerates shoulder flexion, internal rotation

**Integrated Action**: Eccentric contraction: decelerates shoulder extension, external rotation

**Isometric contraction**: stabilizes shoulder girdle

## Lateral (middle) Deltoid

**O:** Scapula; acromion process

**I:** Humerus; deltoid tuberosity

**Isolated Action**: Concentric contraction: accelerates shoulder abduction

**Integrated Action**: Eccentric contraction: decelerates shoulder adduction

**Isometric contraction**: stabilizes shoulder girdle

## Posterior Deltoid

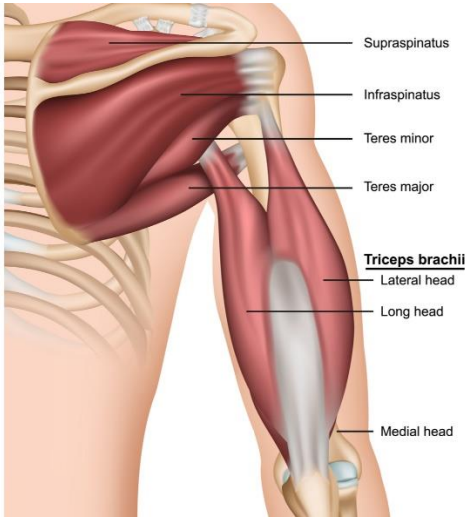
**O:** Spine of scapula

**I:** Humerus; deltoid tuberosity

**Isolated Action**: Concentric contraction: accelerates shoulder extension, external rotation

**Integrated Action**: Eccentric contraction: decelerates shoulder flexion, internal rotation

**Isometric contraction**: stabilizes shoulder girdle




**Teres Major**

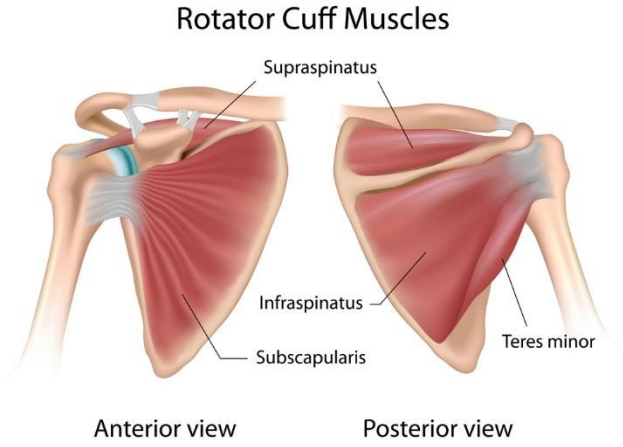
**O:** Scapula; inferior angle

**I:** Humerus; lesser tubercle

**Isolated Action**: Concentric contraction: accelerates shoulder internal rotation, adduction, extension

**Integrated Action**: Eccentric contraction: decelerates shoulder external rotation, abduction, flexion

**Isometric contraction**: stabilizes shoulder girdle




## Teres Minor

**O:** Scapula; axillary border

**I:** Humerus; greater tubercle

**Isolated Action**: Concentric contraction: accelerates shoulder external rotation

**Integrated Action**: Eccentric contraction: decelerates shoulder internal rotation

**Isometric contraction**: stabilizes shoulder girdle

## Infraspinatus

**O:** Scapula; infraspinous fossa

**I:** Humerus; middle facet of the greater tubercle

**Isolated Action**: Concentric contraction: accelerates shoulder external rotation

**Integrated Action**: Eccentric contraction: decelerates shoulder internal rotation

**Isometric contraction**: stabilizes shoulder girdle

## Supraspinatus

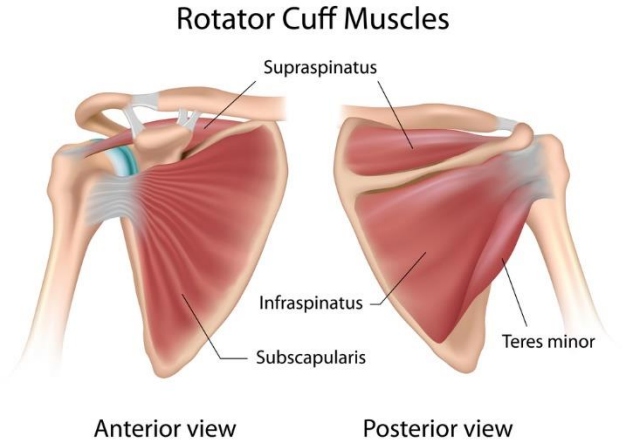
**O:** Scapula; supraspinous fossa

**I:** Humerus; superior facet of the greater tubercle

**Isolated Action**: Concentric contraction: accelerates abduction of arm

**Integrated Action**: Eccentric contraction: decelerates adduction of arm

**Isometric contraction**: stabilizes shoulder girdle




## Subscapularis

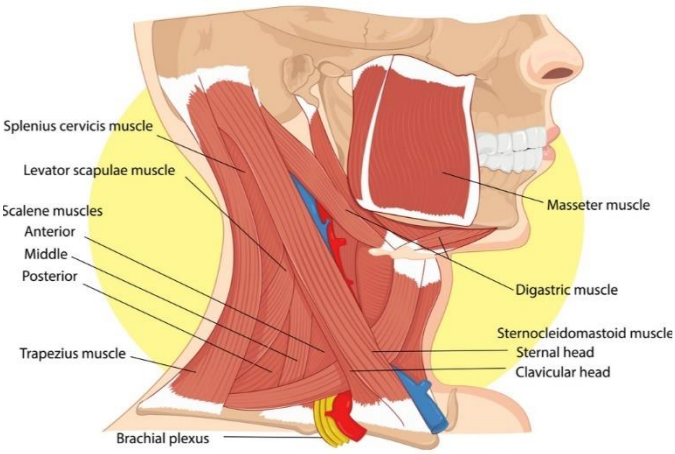
**O:** Scapula; subscapular fossa

**I:** Humerus; lesser tubercle

**Isolated Action**: Concentric contraction: accelerates shoulder internal rotation

**Integrated Action**: Eccentric contraction: decelerates shoulder external rotation

**Isometric contraction**: stabilizes shoulder girdle




**Sternocleidomastoid**

**O:** Sternal head: Sternum; top of manubrium

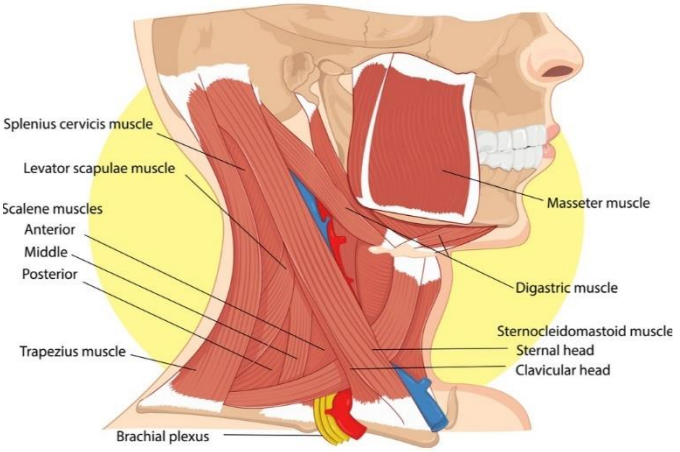
Clavicular head: Clavicle; medial one third

**I:** Mastoid process, lateral superior nuchal line of the occiput of skull

**Isolated Action**: Concentric contraction: accelerates cervical flexion, rotation, lateral flexion

**Integrated Action**: Eccentric contraction: decelerates cervical extension, rotation, lateral flexion

**Isometric contraction**: stabilizes cervical spine, acromioclavicular joint




## Scalenes

**O:** Transverse processes C3-C7

**I:** First and second ribs

**Isolated Action**: Concentric contraction: accelerates cervical flexion, rotation, lateral flexion assists rib elevation during inhalation

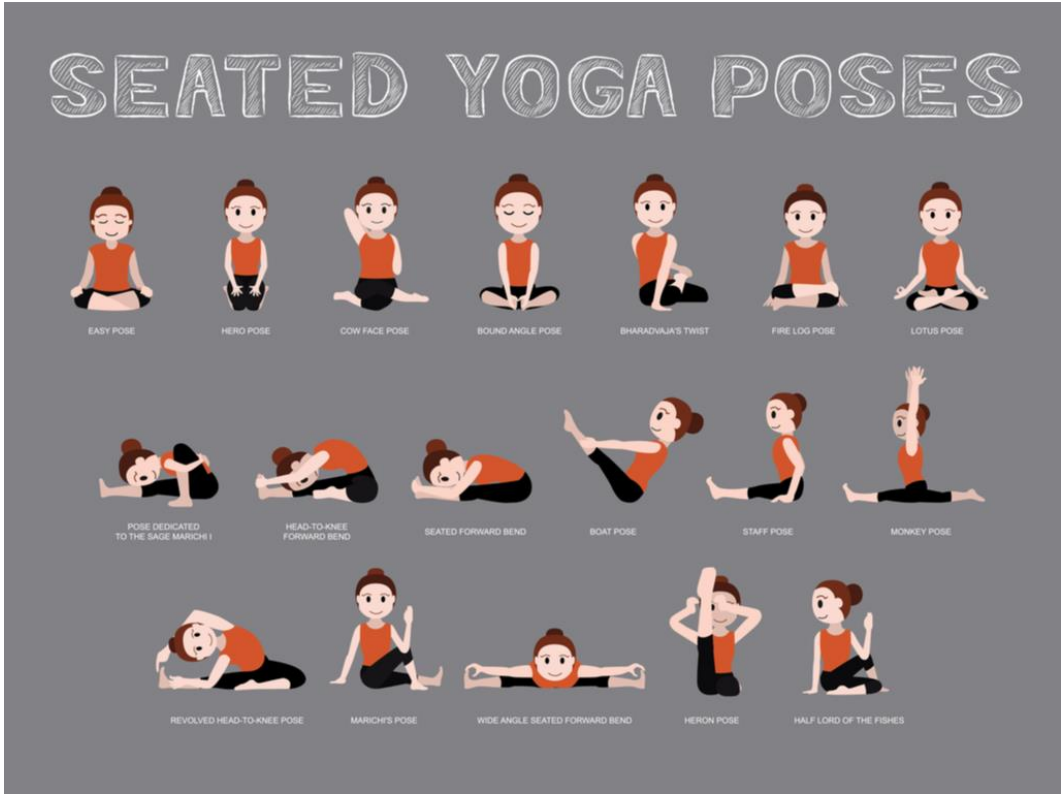
**Integrated Action**: Eccentric contraction: decelerates cervical extension, rotation, lateral flexion

**Isometric contraction**: stabilizes cervical spine

## *Appendix of poses*

Please consult your physician before starting any kind of exercise or stretching regime. It is important to realize some exercises, stretches or poses may be inappropriate for some people.

Practice safely and have fun!

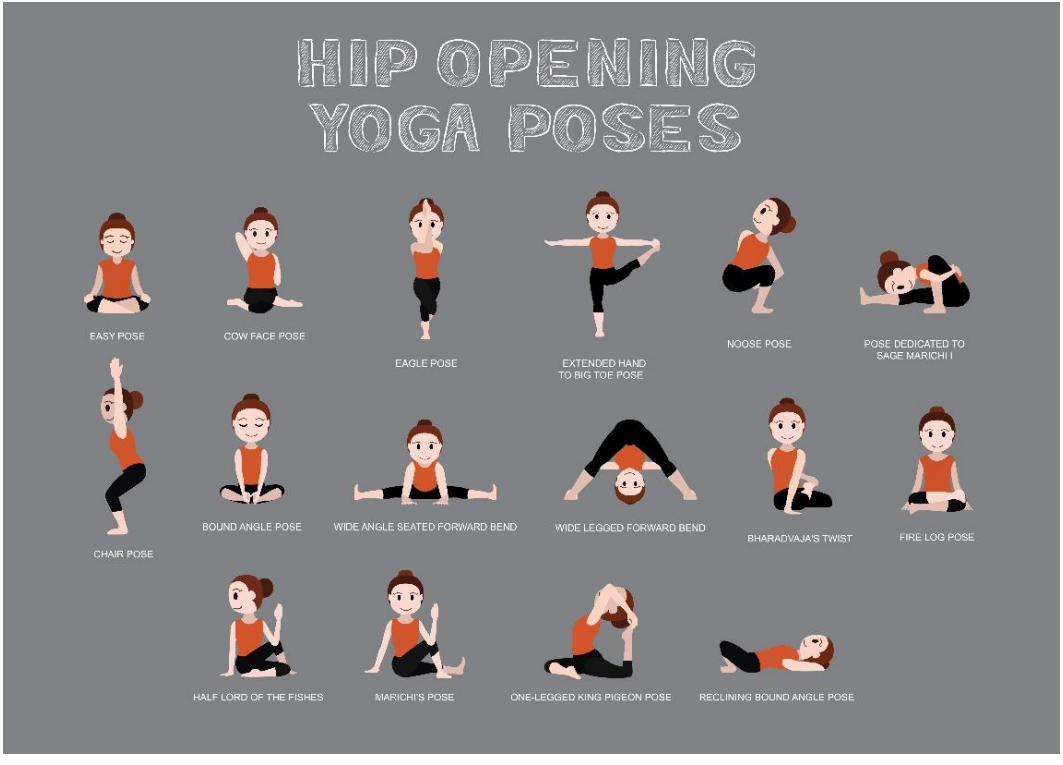

SEATED YOGA POSES
EASY POSE
HERO POSE
COW FACE POSE
BOUND ANGLE POSE
BHARADVAJA'S TWIST
FIRE LOG POSE
LOTUS POSE
POSE DEDICATED TO THE SAGE MARICHI I
HEAD-TO-KNEE FORWARD BEND
SEATED FORWARD BEND
BOAT POSE
STAFF POSE
MONKEY POSE
REVOLVED HEAD-TO-KNEE POSE
MARICHI'S POSE
WIDE ANGLE SEATED FORWARD BEND
HERON POSE
HALF LORD OF THE FISHES


FORWARD BEND YOGA POSES
STANDING HALF FORWARD BEND
STANDING SPLIT
WIDE ANGLE SEATED FORWARD BEND
BIG TOE POSE
CHILD'S POSE
EXTENDED PUPPY POSE
HEAD-TO-KNEE FORWARD BEND
BOUND ANGLE POSE
DOWNWARD-FACING DOG
INTENSE SIDE STRETCH POSE
WIDE LEGGED FORWARD BEND


CORE YOGA POSES
SIDE PLANK POSE
SIDE RECLINING LEG LIFT
CHAIR POSE
FOUR-LIMBED STAFF POSE
DOLPHIN PLANK POSE
PLANK POSE
COW POSE
SCALE POSE
HAPPY BABY POSE
DOLPHIN POSE
BOAT POSE


BALANCING YOGA POSES
WARRIOR III POSE
SUPPORTED SHOULDERSTAND
SUPPORTED HANDSTAND
SIDE RECLINING LEG LIFT
LORD OF THE DANCE POSE
HANDSTAND
HALF MOON POSE
EXTENDED HAND-TO-BIG-TOE POSE
EAGLE POSE
TREE POSE
SIDE PLANK POSE


CHEST OPENING YOGA POSES
CAMEL POSE
FISH POSE
WILD THING POSE
LORD OF THE DANCE POSE
UPWARD FACING TWO-FEET STAFF POSE
UPWARD BOW POSE
BOW POSE
LOCUST POSE
COW POSE
SPHINX POSE
COBRA POSE
UPWARD FACING DOG POSE
HALF FROG POSE


HIP OPENING
YOGA POSES
EASY POSE
COW FACE POSE
EAGLE POSE
EXTENDED HAND
TO BIG TOE POSE
NOOSE POSE
POSE DEDICATED TO
SAGE MARICHI I
CHAIR POSE
BOUND ANGLE POSE
WIDE ANGLE SEATED FORWARD BEND
WIDE LEGGED FORWARD BEND
BHARADVAJA'S TWIST
FIRE LOG POSE
HALF LORD OF THE FISHES
MARICHI'S POSE
ONE-LEGGED KING PIGEON POSE
RECLINING BOUND ANGLE POSE

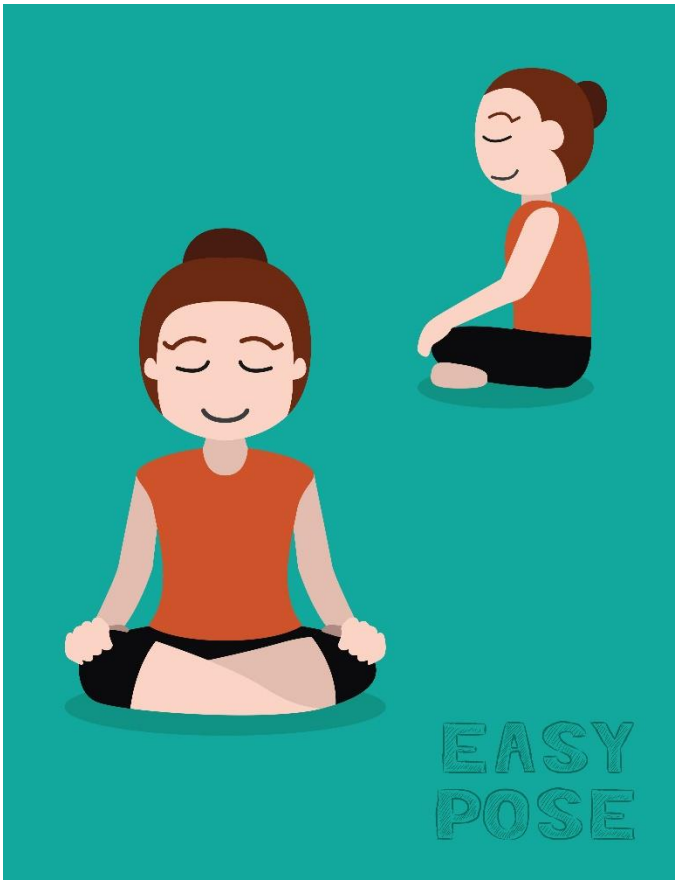
## *Sequence with purpose*

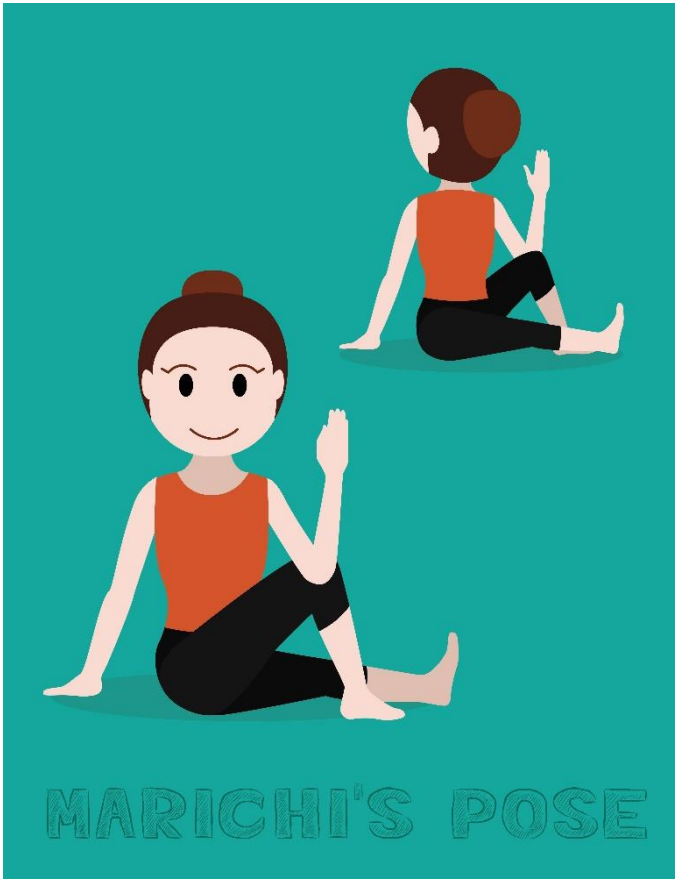
When we sequence our classes, we do so with purpose.

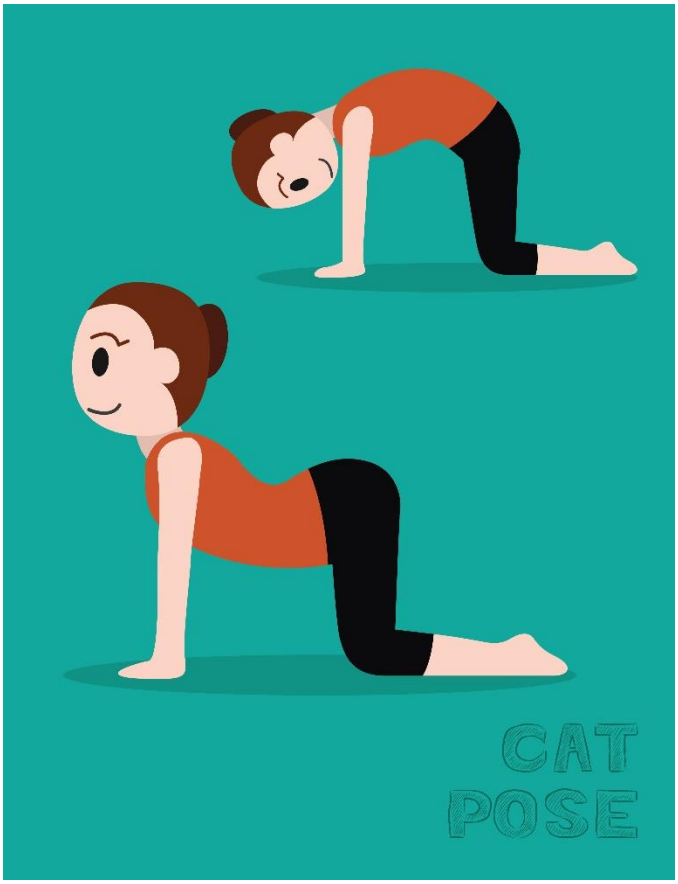
Sometimes we create classes that build up to a peak pose. Other times we create well rounded classes that still encompass all planes of motion but do not prepare the body for a specific peak pose. We need to consider what muscles we are engaging in either scenario and make sure we are utilizing the agonist as antagonists throughout our sequence to appropriately counter pose and help to create balance in the body.

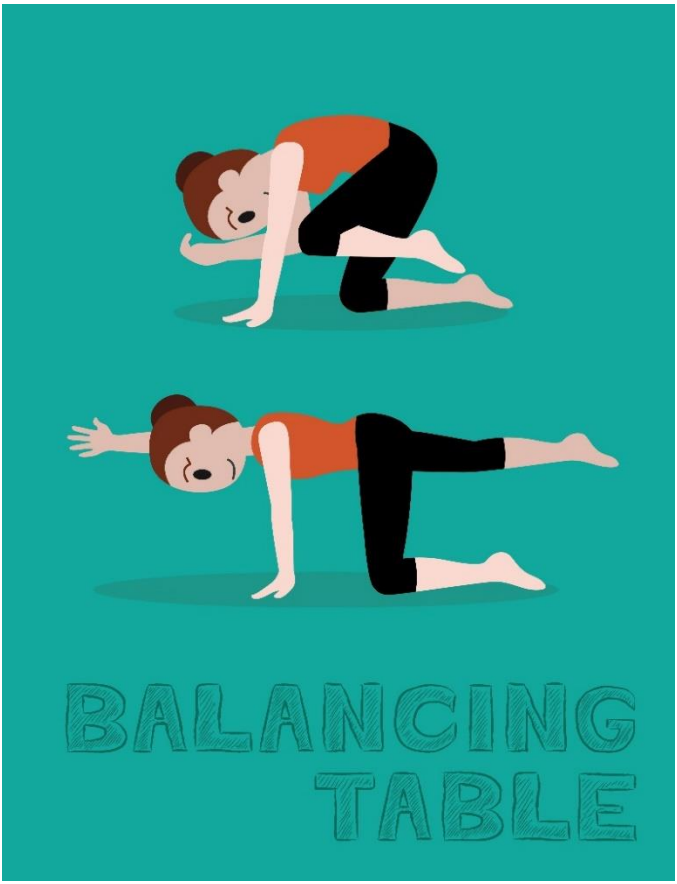
I hope you enjoy the following sequence I have put together. Notice how the sequence utilizes all planes of motion. Remember to perform each pose bilaterally as appropriate to help create balance in the body.

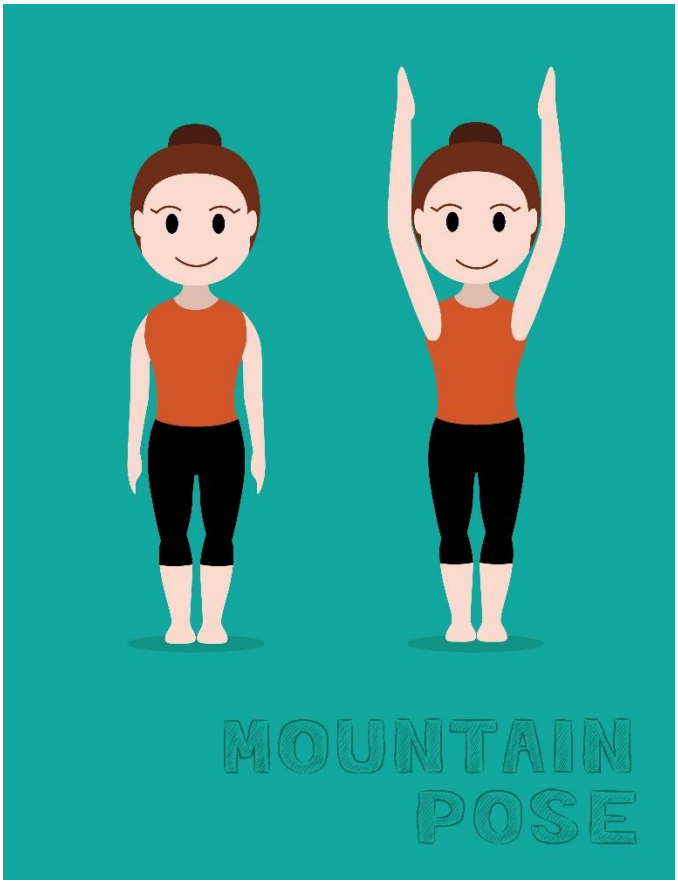
Please feel free to add and/or omit poses as you feel best appropriate for your body at this time.

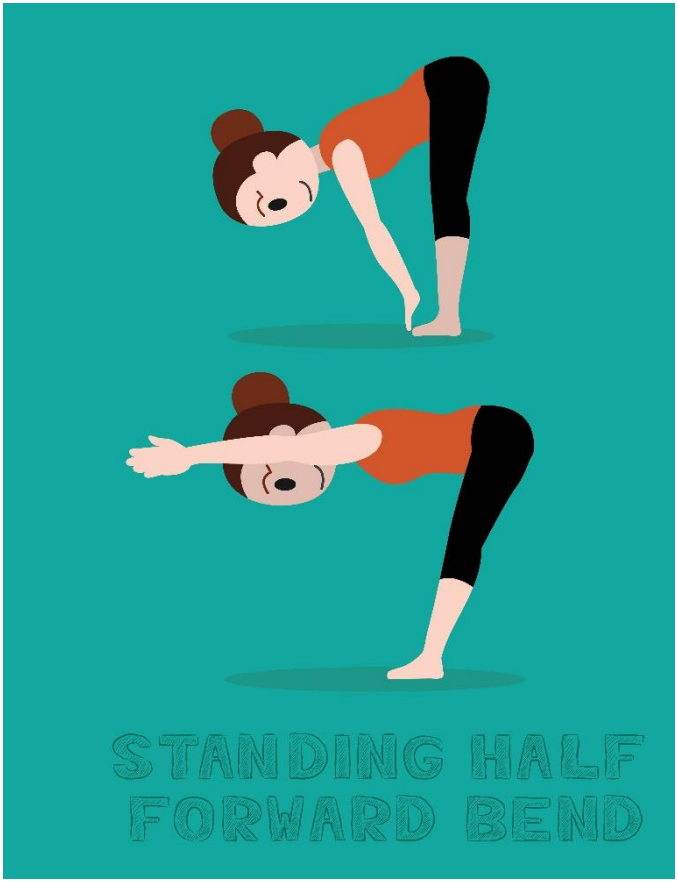

EASY
POSE

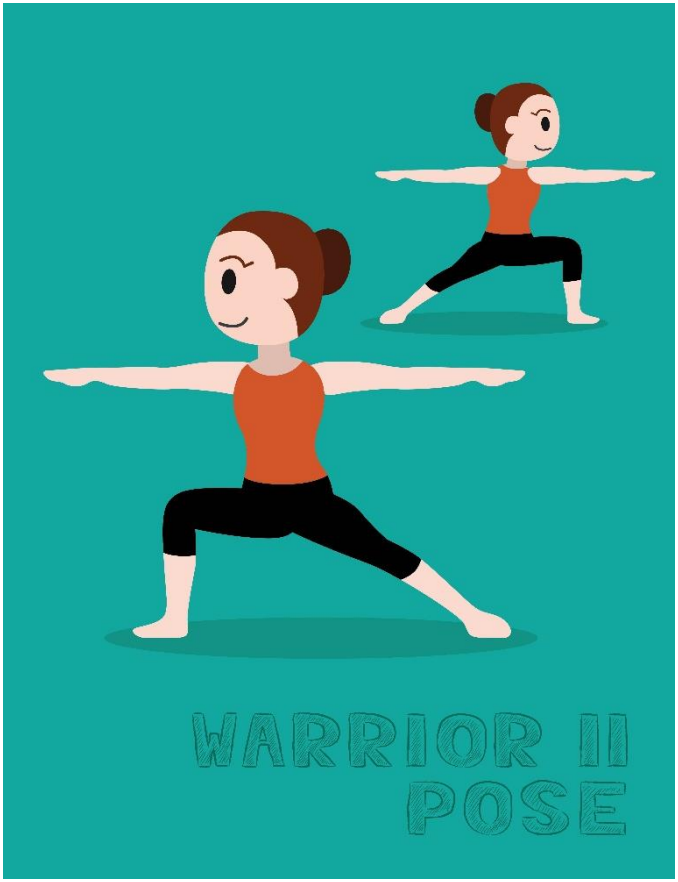

MARICHI'S POSE


CAT
POSE

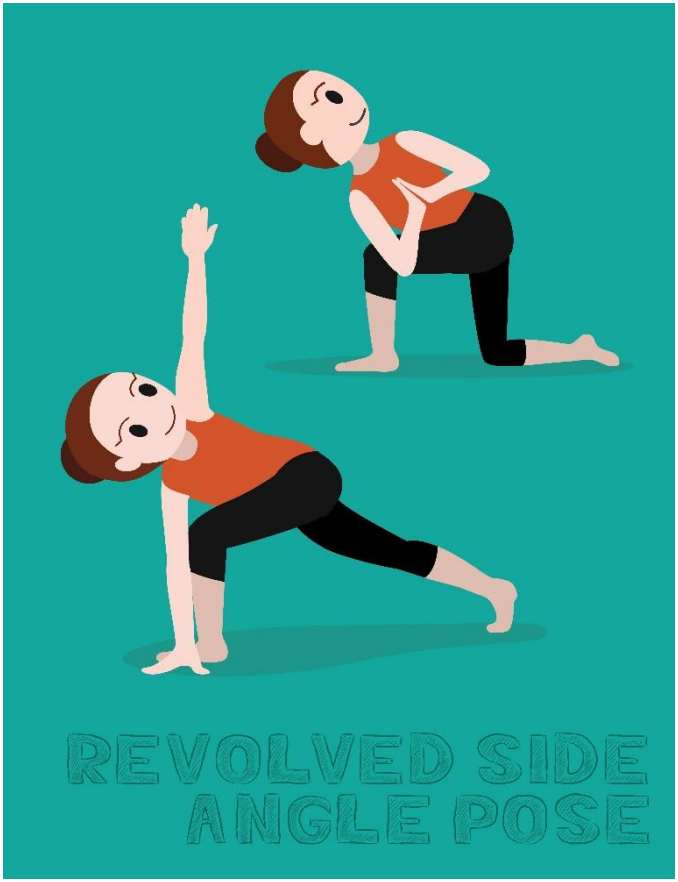

BALANCING
TABLE

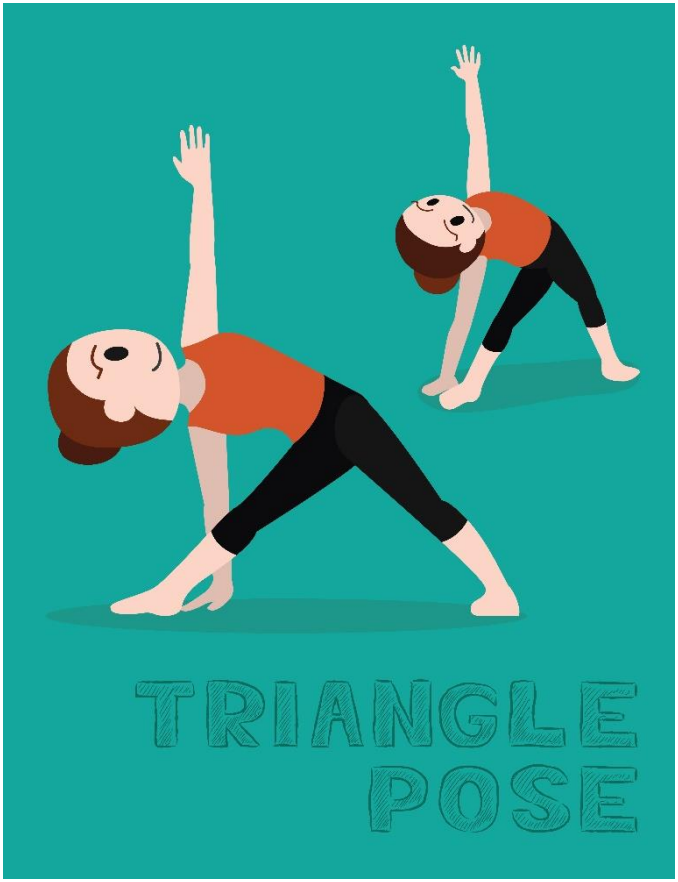

MOUNTAIN
POSE


STANDING HALF
FORWARD BEND

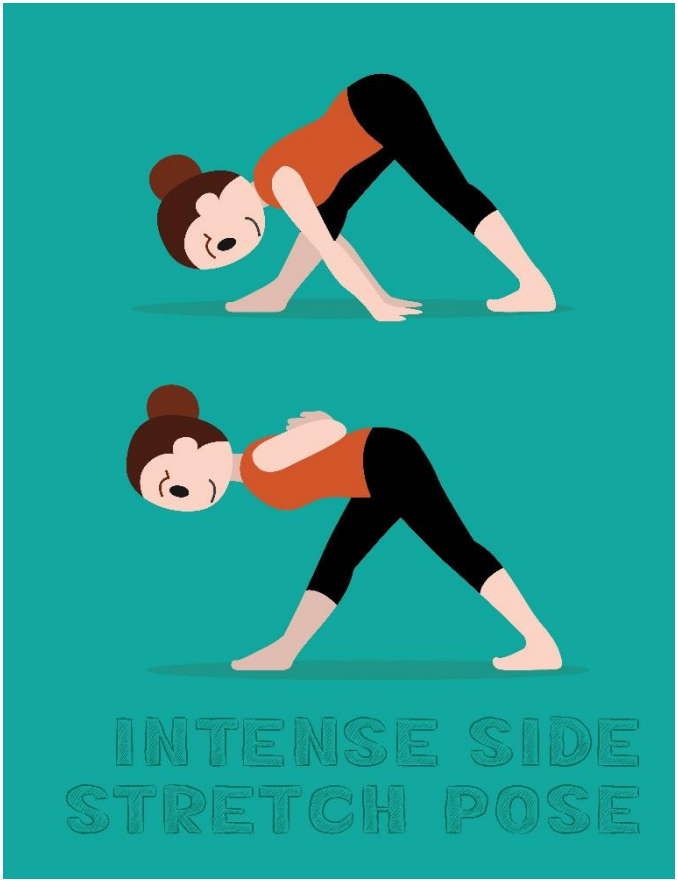

WARRIOR II
POSE

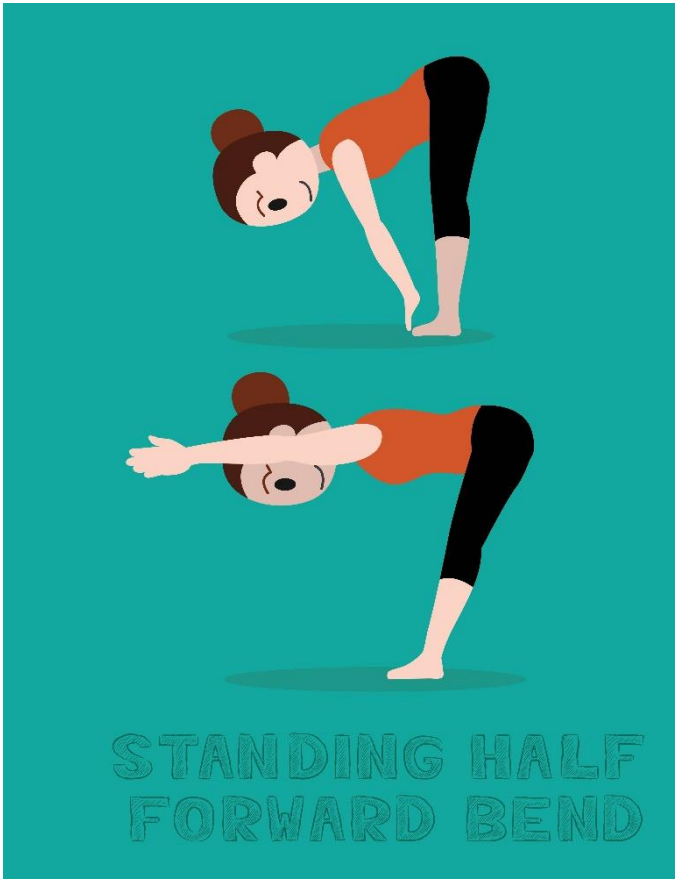

EXTENDED SIDE
ANGLE POSE

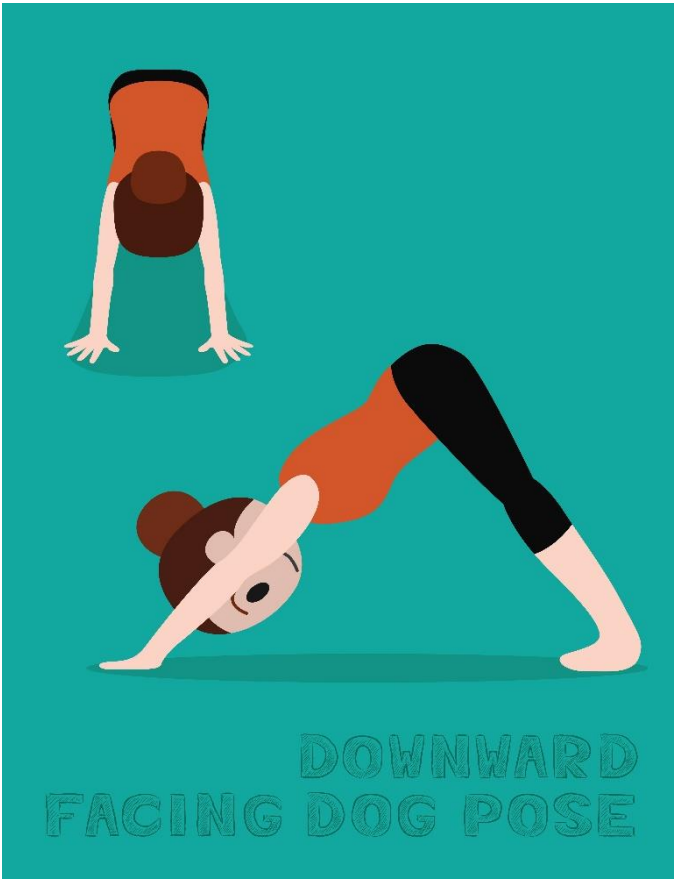

REVOLVED SIDE
ANGLE POSE


TRIANGLE
POSE

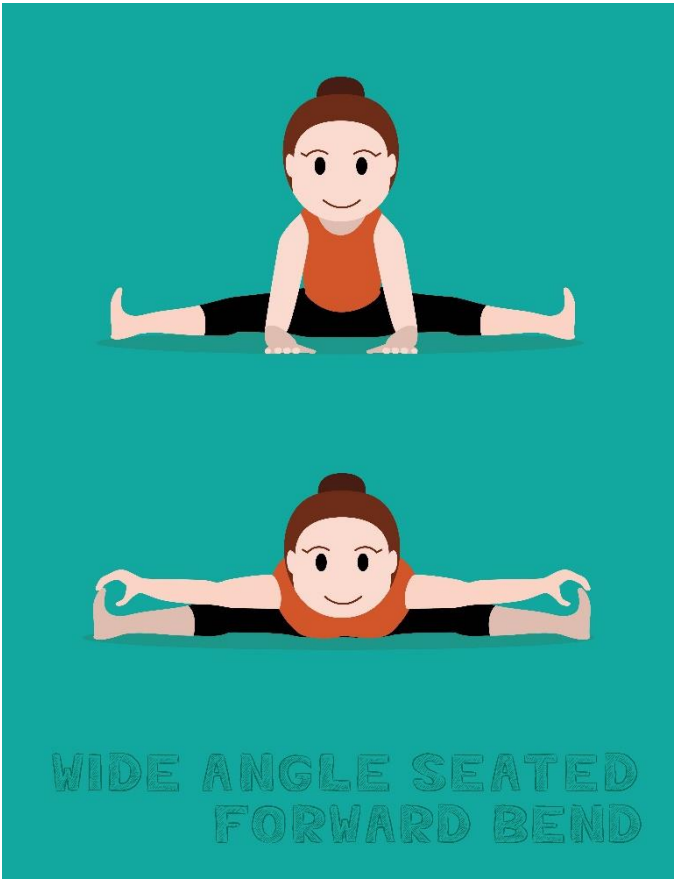

WARRIOR I
POSE

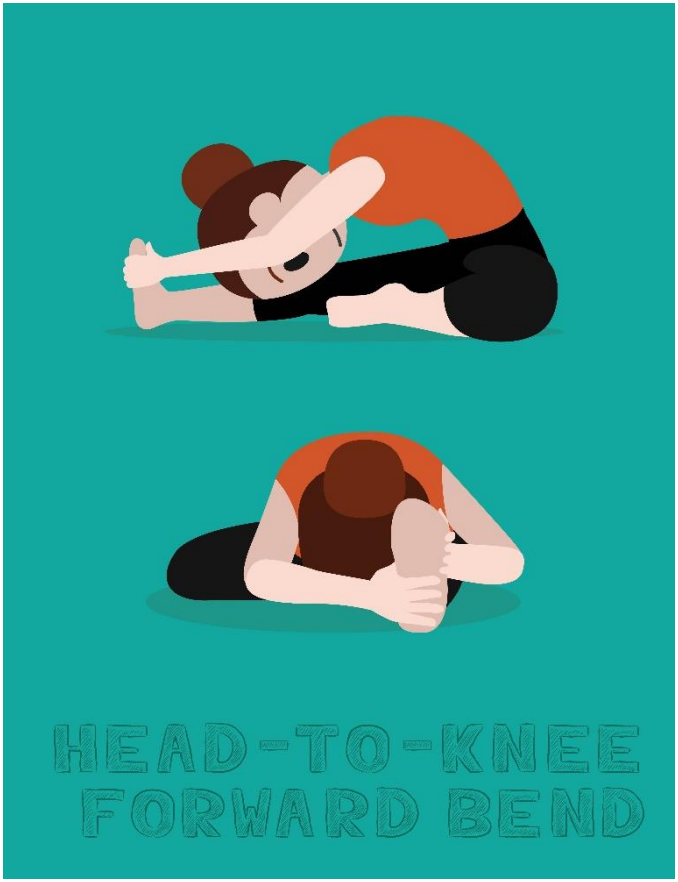

INTENSE SIDE
STRETCH POSE

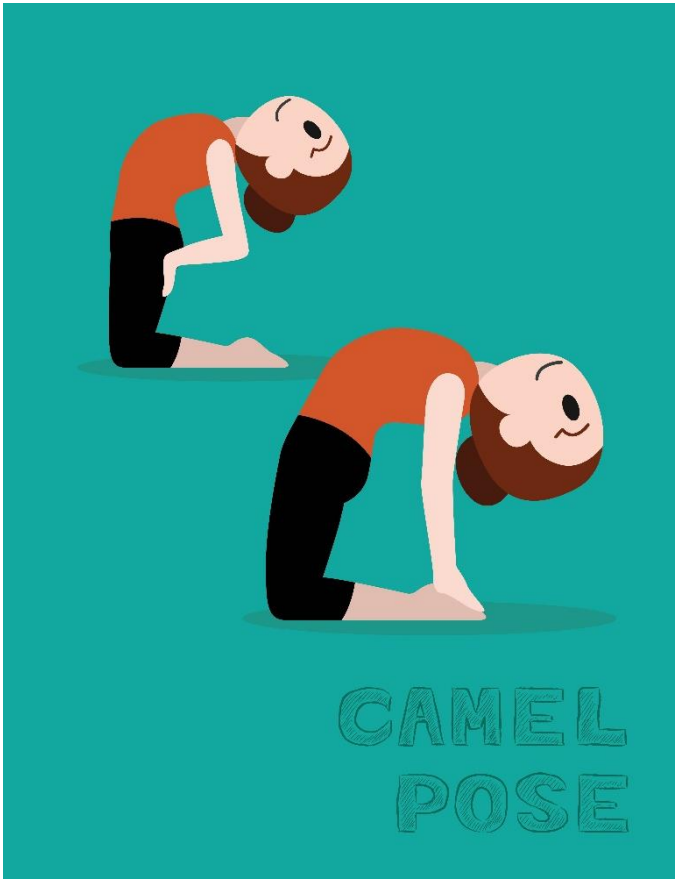

STANDING HALF
FORWARD BEND

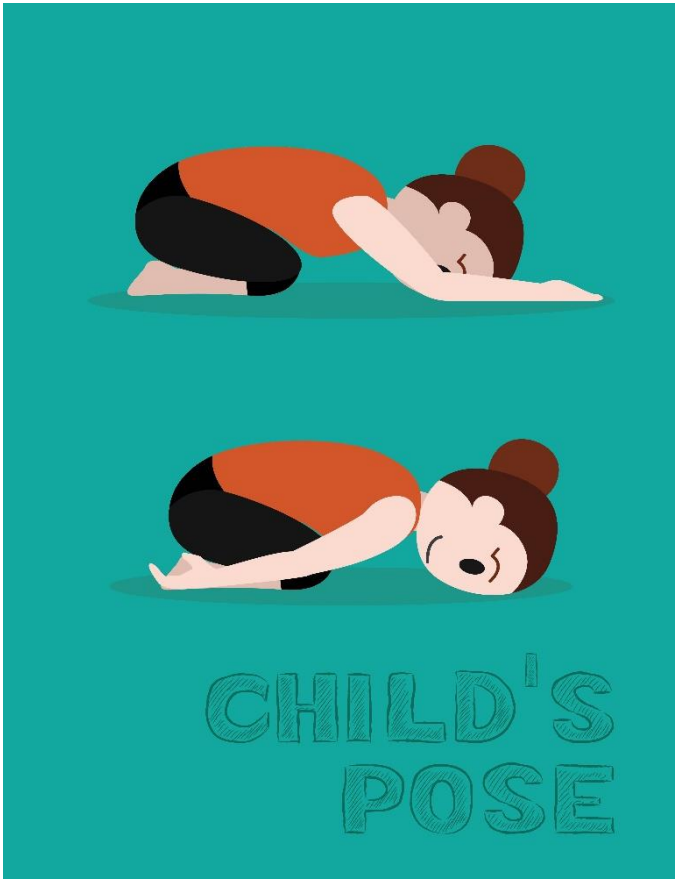

DOWNWARD
FACING DOG POSE


WILD THING
POSE


WIDE ANGLE SEATED
FORWARD BEND


HEAD-TO-KNEE
FORWARD BEND


CAMEL
POSE


CHILD'S
POSE

***Bridge***

**Strengthens: Glutes and Core**

***Sit Ups***

## Strengthens: Abdomen

***External Shoulder Rotation***

## Strengthens: Middle back, Lateral shoulder rotators

***Plank***

## Strengthens: Core, Chest, Back, Glutes, Hip flexors, Quads

***Side Plank***

**Can also be practiced on elbow instead of hand**

## Strengthens: Core, Back, Glutes, Sides, Lats, Shoulders

## *Warm Up and Cool Down*


# *Bibliography*

National Academy of Sports Medicine. (2018). *NASM Essentials of Personal Fitness Training 6th edition.*

VanPutte, C. (2019). *Seeley's Anatomy & Physiology 12th edition .* NY: McGraw Hill Education.